

Introduction To Food Processing

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INTRODUCTION TO THE COURSE

Welcome to the course “Introduction to Food Processing”. This course has been put together to introduce you to the requirements of employment within a food processing plant. The information contained in this course has been provided by food processors in the Pacific Northwest, primarily in Central Washington. The course material is general in nature, and not intended to be specific to any one particular food processing plant.

The food processing employers hope that the material contained in this course will help you become more familiar with the work they do. The student will be introduced to basic concepts of employer expectations in the work-place, the business purpose for food processing plants, quality requirements, and safety expectations within the industry. All of these elements are needed, in order for employees, or prospective employees, to be successful.

The student will be given information about each topic; Work Standards, Productivity, Quality, and Safety. Each topic contains a number of units – or lessons – that introduce a critical idea or requirement within a food processing plant. It is important to understand the material presented because it will lead to success in whatever job you may have within the food processing industry.

Students can benefit from this material by knowing job expectations and being able to determine their suitability for a job in a food processing plant. This course will help them identify continuing education requirements so that, with higher education and skill, they can have more opportunity for advancement.

Each lesson is created to provide you with the greatest opportunity to learn. If you have a question, or do not understand something, ask your instructor for help. We wish you well as you explore the requirements of work in the food processing industry.

WORK STANDARDS

EMPLOYER EXPECTATIONS

GENERAL RESPONSIBILITIES

Responsibilities / Tasks

Below is a list of responsibilities and tasks that you might find in a food processing plant. This list does not include everything you may be required to do, but it gives a good idea of the things you may be doing as an employee.

1. Remove foreign material and/or defects as described on posted instructions.
2. Sort potatoes (or other raw product) for scrubbing or halving as needed.
3. Work (trimming) in an effective way to decrease waste.
4. Trim potatoes (or other raw product) at a speed meeting expected standards.
5. Follow safe work practices and policies to make sure no one gets hurt.
6. Participate in appropriate training activities and incorporate required skills and knowledge.
7. Follow the company policies and procedures and Union Labor Agreement (if appropriate).
8. Work with team members and other support groups in a cooperative management style.
9. Behave in a skilled way and make sure personal appearance meets the standards needed to do the job while representing the company.
10. Handle extra responsibilities if needed by management in a way that meets operational and divisional standards.
11. Clean areas in a safe, timely and skilled way to meet operational standards.

12. Handle and use chemicals in a safe and effective way. Line and cover totes(bulk containers) safely to prevent contamination.
13. Inspect and strip bags (or other packaging containers) safely.
14. Do re-work as needed.
15. Set-up and break down totes (or other bulk containers) safely.
16. Relieve employees during breaks as needed.
17. Be able to turn equipment on and off and follow lockout/tagout procedures.
18. Identify and report immediately any mechanical problems.
19. Communicate with team members and other departments well.
20. Make inspections of frozen products, removing foreign material and contaminated products, as needed.
21. Make sure contaminated product and foreign materials are safely disposed of.
22. Make sure workplace is kept clean and orderly; sweeping and shoveling as needed.
23. Respond to identification of material according to the specific foreign material procedures.
24. Remove, clean, and replace grading screens, and other machine components, as needed.

SKILLS

There are a number of qualities that employers are looking for in an employee. A number of surveys have been done to determine what employers want. In these studies, ALL employers emphasized the importance of basic skills. Computer skills and basic math skills are required. Communication skills should include the ability to read and follow specific directions, to use proper grammar and spelling, and to converse effectively. Technical reading and writing skills were also listed as important.

The employers interviewed, however, talked almost exclusively about personal qualities. They wanted employees with the following traits:

POSITIVE ATTITUDE	Every employer placed attitude at the top of the list. As one employer said: "Hire the attitude and train the skill."
WORK ETHIC	Employers stressed the importance of the following: honesty, courtesy, company loyalty, pride in a job well done, full measure of work for the pay. One employer described the work ethic as "being able to put into practice all the good things your parents taught you as a child."
RELIABILITY AND RESPONSIBILITY	"80% of success is showing up." Employers want employees who arrive on time for work or will notify them if ill. They want employees who can be depended upon to do their jobs without constant reminders.
FLEXIBILITY AND ADAPTABILITY	"Change is one of the few constants in life." Employers want employees who can accept and adjust to change. They want employees who can think on their feet, go with the flow, work well with a variety of people, follow directions, perform multiple tasks, and be self-starters and life-long learners.
PERSONAL INTERACTION	Qualities such as demonstrating team skills, problem solving skills, compassion, and empathy were mentioned by employers as being vital. Good grooming, personal hygiene, and good manners are important. One employer indicated frustration about an employee who got the job done but who could not work in a team. He fired the employee, not for his lack of technical skills, but for his lack of personal skills.

SKILL STANDARDS

The skills required to work in a food processing facility are numerous. Below are a number of requirements of most entry-level sanitation positions. Not every skill may be required in every facility, but this list will give you an idea about what kinds of skills are needed and what kind of environment you will be working in.

Sanitation - Description

An employee working in sanitation is required to keep a high standard of hygiene throughout the food processing plant, especially where any raw or finished product is produced. A sanitation worker will use a variety of chemicals in the cleaning process, following company and OSHA regulations. These supplies must be correctly and safely used and stored, and activities documented. Some equipment must be cleaned in place regularly, and the sanitation crew will work as a team within physical and time constraints to sanitize machines, tables, and/or conveyors. A sanitation worker may also perform minor plumbing repairs, provide pest control, and operate specialized moving equipment.

SUMMARY OF CRITICAL WORK FUNCTIONS

1. HANDLE CHEMICALS

- A1 - Select and obtain chemicals
- A2 - Mix cleaning solutions for production areas
- A3 - Use cleaning chemicals
- A4 - Dispose of and/or return chemicals and containers

2. CLEAN/PROVIDE FACILITY

- B1 - Place grates, hoses, and line tools
- B2 - Operate Cleaned-in-place system
- B3 - Clean equipment and facility
- B4 - Sanitize machines, tables, and/or conveyors
- B5 - Remove debris from work area
- B6 - Perform and/or provide pest control
- B7 - Perform minor plumbing repairs
- B8 - Attend meetings and training

3. TRANSPORT MATERIAL

- C1 - Operate specialized moving equipment
- C2 - Perform barrel dump
- C3 - Manually transport chemicals in containers

4. PERFORM AND DOCUMENT INSPECTIONS

- D1 - Inspect equipment
- D2 - Inspect chemicals
- D3 - Document inspection results
- D4 - Provide documentation

CRITICAL WORK FUNCTION: A - HANDLE CHEMICALS

KEY ACTIVITY

Select and obtain chemicals (A1)

Performance Indicators

This Key Activity is Performed Well When:

- Chemicals are safely selected and obtained in accordance with all applicable laws and regulations.
- Chemicals are selected and obtained in accordance with company procedures.
- Chemicals are selected/obtained in a timely way.
- Chemical needs and updates are clearly and effectively communicated to appropriate personnel.
- Appropriate documentation is properly completed for obtaining chemicals.
- Proper labels are affixed to secondary containers and visual check of labeling is performed.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of company procedures.
- Knowledge of use of personal protective gear.
- Knowledge of location of eyewash stations and showers.
- Knowledge of chemical terminology and safety symbols.
- Knowledge of OSHA regulations and standards.
- Knowledge of secondary labeling procedures.
- Knowledge of characteristics of correct and incorrect labels.
- Ability to use dispensers and scanners, where applicable.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to identify relevant details, facts and specifications, and follow a set of cleaning instructions.
- Ability to respond to verbal and nonverbal communication.
- Ability to follow through on assigned tasks.
- Ability to order and provide chemicals.
- Ability to examine information/data for relevance and accuracy.
- Ability to motivate others to extend their capabilities.

Work Keys:

Reading for Information; Locating Information; Observation; Teamwork

KEY ACTIVITY

Mix cleaning solutions for production areas (A2)

Performance Indicators

This Key Activity is Performed Well When:

- Personal protective equipment is worn in accordance with all applicable laws, regulations and company policies.
- Mixing of chemicals meticulously. Follows company procedures. Proper equipment is correctly utilized.
- Chemicals are safely mixed according to OSHA required standards.
- Chemicals are mixed in a timely way.
- Secondary container labeling is correctly and carefully performed.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Ability to utilize Job Safety Analyses, operations manual, and MSDS sheets.
- Knowledge of proper chemical mixing procedures.
- Knowledge of safety requirements for each chemical.
- Ability to utilize mixing equipment, computerized dispensers, and scanners.
- Knowledge of chemical measuring procedures.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to interpret symbols.
- Ability to understand requirements of the task.
- Ability to perform measurements.
- Ability to recognize and respond to internal customer needs.
- Ability to monitor safe and effective utilization of materials.
- Ability to translate mathematical data.

Work Keys:

Reading for Information; Locating Information; Applied Mathematics; Observation; Listening; Writing; Teamwork

KEY ACTIVITY

Use cleaning chemicals (A3)

Performance Indicators

This Key Activity is Performed Well When:

- Chemical use meets company/customer specifications and local, state and federal regulations.
- Chemicals are safely used. Chemical use is properly documented in accordance with company procedures.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of the properties and uses of sanitation chemicals.
- Knowledge of correct chemical use to meet specifications.
- Knowledge of company procedures.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to follow through on assigned tasks.
- Ability to monitor safe and effective utilization of materials.
- Ability to utilize previous training/experience to predict outcomes.
- Ability to analyze situation and consider risk/implications.
- Ability to monitor/adjust task sequence

Work Keys

Reading for Information; Locating Information; Observation

KEY ACTIVITY

Dispose of and/or return chemicals and containers (A4)

Performance Indicators

This Key Activity is Performed Well When:

- Chemicals are safely disposed of/returned according to company procedures and all laws and regulations.
- Chemicals and containers are correctly returned to proper location.
- Chemicals/containers are disposed of/returned in accordance with hazardous materials procedures.
- Problem(s) with chemical disposal and locations is effectively communicated to the supervisor in a timely way.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of company procedures.
- Knowledge of safety procedures.
- Knowledge of location of company disposal containers and sites.
- Knowledge of hazardous material laws, regulations, and procedures.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to show commitment to personal/social improvement.
- Ability to present complex information and analyze response.
- Ability to monitor safe and effective utilization of materials.
- Ability to monitor performance standards regarding disposal of chemicals.
- Ability to follow safety practices and procedures.

Work Keys

Reading for Information; Locating Information; Observation; Teamwork

CRITICAL WORK FUNCTION: B - CLEAN/PROVIDE FACILITY

KEY ACTIVITY

Place grates, hoses, and line tools (B1)

Performance Indicators

This Key Activity is Performed Well When:

- Hoses are correctly and safely rolled and placed in proper location.
- Gutters are correctly and safely covered with grates in a timely way according to company procedures.
- Tools are correctly and safely cleaned and hung up in the proper location.
- Improvements in grate, hose and line tool practices are effectively communicated to appropriate personnel in a timely way.
- Placement occurs in compliance with all laws and regulations.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of Safety laws, regulations and company procedures.
- Knowledge of company forms and channels of communication.
- Knowledge of proper and safe care and storage of grates, hoses, and line tools.
- Knowledge of how to safely clean tools and storage location.
- Knowledge of food contact/non-food contact use and storage of tools.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to monitor performance standards.
- Ability to accept responsibility for own behavior.
- Ability to follow procedures for placing grates, hoses, and line tools.
- Ability to respect rights of others and show awareness of diversity.
- Ability to understand requirements of the task.

Work Keys

Reading for Information; Locating Information; Observation; Teamwork

KEY ACTIVITY

Operate Cleaned-in-place system (B2)

Performance Indicators

This Key Activity is Performed Well When:

- The cleaned-in-place system is operated in a timely way.
- The cleaned-in-place system is operated according to plant safety procedures and practices.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Ability to use company specific cleaned-in-place System equipment.
- Knowledge of safety policies and procedures.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to interpret and summarize information
- Ability to judge technology performance.
- Ability to present complex information.

Work Keys

Reading for Information; Locating Information; Observation; Teamwork

KEY ACTIVITY

Clean equipment and facility (B3)

Performance Indicators

This Key Activity is Performed Well When:

- Machinery and environment are cleaned in accordance with safety procedures and all laws and regulations.
- Cleanups are completed within established time frames in conjunction with team members.
- Equipment and facility are properly cleaned in accordance with all applicable hazardous materials procedures
- Proper equipment and tools are used and operated according to company procedures and equipment manuals
- All appropriate cleaning information is effectively communicated to supervisor in a timely way

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of applicable laws and regulations.
- Ability to select and operate cleaning equipment and tools.
- Knowledge of proper use of chemicals and hazardous materials procedures
- Ability to work in confined spaces and at aerial heights
- Knowledge of body fluids/bloodborne pathogens processes
- Ability to recognize and interpret chemical safety symbols
- Ability to follow proper lifting procedures

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to analyze basic logic/practices/principles.
- Ability to apply self-management skills.
- Ability to apply appropriate principles, laws, and theories to situations.
- Ability to actively participate in team activities and show commitment.
- Ability to monitor safe and effective use of materials.

Work Keys

Reading for Information; Locating Information; Observation; Writing; Teamwork

KEY ACTIVITY

Sanitize machines, tables, and/or conveyor's (B4)

Performance Indicators

This Key Activity is Performed Well When:

- Correct tools and equipment are properly used according to equipment and company procedures.
- Sanitizing is safely and completely performed within established time frames.
- Sanitizing is performed in accordance with company procedures and production schedules.
- Proper chemicals are used in accordance with company procedures.
- Sanitizing is performed in accordance with all laws and regulations.
- Hand dips are provided to inspectors as specified by Good Manufacturing Practices.
- Supervisor is immediately notified of contact between cleaning materials and food.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of safety procedures and personal protective gear.
- Understanding of Good Manufacturing Practices and applicable laws and regulations.
- Knowledge of how to prepare a hand dip.
- Understanding of and ability to utilize proper equipment for specific machines and work areas.
- Knowledge of and ability to follow safety procedures.
- Knowledge of breaks in the line and associated procedures.
- Ability to follow channels of company communication.
- Knowledge of procedures for confined spaces and aerial heights.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to analyze personal/social implications of decisions.
- Ability to utilize previous training and experience to predict outcomes.
- Ability to monitor safe and effective use of materials
- Ability to understand system organization/hierarchy.
- Ability to present complex information.

Work Keys

Reading for Information; Locating Information; Observation; Teamwork

KEY ACTIVITY

Remove debris from work area (B5)

Performance Indicators

This Key Activity is Performed Well When:

- Appropriate implements, tools, and cleaning materials are properly and correctly used.
- Debris and excess ice/water are completely and carefully removed from work area in accordance with company procedures.
- Debris is safely removed within established time frames.
- Debris/ice removal improvement recommendations are effectively communicated to appropriate personnel in a timely way.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of safety and disposal procedures.
- Knowledge of appropriate use of de-icers and steam cleaning equipment.
- Ability to recognize tools and equipment.
- Knowledge of company forms and channels of communication.

2Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to understand requirements of the key activity.
- Ability to understand operation/interaction and manipulation technology for desired results.
- Ability to apply self-management skills.

Work Keys

Observation; Teamwork

KEY ACTIVITY

Perform and/or provide pest control (B6).

Performance Indicators

This Key Activity is Performed Well When:

- Pest control is safely performed in accordance with company procedures and laws and regulations.
- Proper equipment, tools and traps are selected and correctly used in accordance with laws and regulations.
- Proper inspections are thoroughly and correctly performed.
- Reports are carefully prepared.
- Appropriate persons and departments are notified of quality of results.
- Seasonal changes in pest control programs are correctly implemented in a timely way.
- Recommendations for improvements are effectively communicated to appropriate personnel in a timely way.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of applicable laws and regulations.
- Knowledge of appropriate personal protective equipment.
- Knowledge of appropriate chemicals.
- Ability to work with outside services.
- Knowledge of company forms and channels of communication.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to understand system organization and hierarchy.
- Ability to understand operation/interaction and manipulate technology for desired results.
- Ability to show sensitivity to internal customer concerns and interests.
- Ability to monitor safe and effective utilization of materials.
- Ability to prepare basic reports and select method of communication.

Work Keys

Reading for Information; Locating Information; Observation; Writing; Teamwork

KEY ACTIVITY

Perform minor plumbing repair's (B7).

Performance Indicators

This Key Activity is Performed Well When:

- Proper equipment is correctly utilized.
- Minor plumbing repairs are safely performed in accordance with plant procedures and usage guidelines.
- Plumbing repairs are carefully and neatly completed in a timely way.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of basic mechanical skills and tools required for plumbing repairs.
- Knowledge of safety procedures and company procedures.
- Knowledge of proper use of equipment and chemicals.
- Knowledge of correct lifting procedures.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to monitor safe and effective utilization of materials.
- Ability to apply appropriate principles, laws, and theories to situation.
- Ability to apply self-management skills.
- Ability to follow practices, policies, and procedures.

Work Keys

Locating Information; Observation

KEY ACTIVITY

Attend training and safety meeting (B8).

Performance Indicators

This Key Activity is Performed Well When:

- Meetings and training are attended in a focused and timely way with active participation.
- Meetings and training are effectively attended in accordance with company procedures and standards.
- Information regarding food safety is carefully given and received.
- Information regarding unsafe behavioral/work practices and/or work areas is carefully given and received.
- Issues are carefully discussed and solutions are defined.
- Communication is respectfully performed without discrimination.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of company procedures and standards.
- Knowledge of meeting/training protocols.
- Knowledge of work area safety requirements.
- Knowledge of plant terminology.
- Knowledge of work environment and safety policies.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to accept responsibility to own behavior and understand impact on others.
- Ability to modify behavior to environment.
- Ability to interpret information.
- Ability to recognize differences/biases and respect rights of others.
- Ability to show composure.
- Ability to present ideas/knowledge and actively participate in discussions.

Work Keys

Reading for Information; Locating Information; Observation; Writing; Teamwork

CRITICAL WORK FUNCTION: C - TRANSPORT MATERIAL

KEY ACTIVITY

Operate specialized moving equipment (C1).

Performance Indicators

This Key Activity is Performed Well When:

- Equipment is properly and correctly driven in accordance with laws, regulations and company procedures.
- Materials are properly and correctly handled in accordance with laws, regulations and company procedures.
- Moving equipment is safely operated.
- Current operating license is properly displayed in accordance with laws, regulations and company procedures.
- Materials are neatly delivered to an appropriate location in a timely way.
- Equipment training is in accordance with OSHA regulations.
- Problems in operating equipment are effectively communicated to supervisor in a timely way.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Ability to drive specialized moving equipment.
- Ability to provide all proper licenses.
- Knowledge of how to properly inspect specialized moving.
- Knowledge of proper storage locations.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to apply appropriate principles to the situation.
- Ability to interpret symbols, diagrams, and schematics.
- Ability to analyze personal/social implications of decisions.
- Ability to monitor safe and effective utilization of materials.
- Ability to monitor performance standards and follow through on assigned tasks.
- Ability to apply self-management skills.

Work Keys

Reading for Information; Locating Information; Observation; Writing; Teamwork

KEY ACTIVITY

Perform barrel dump (C2)

Performance Indicators

This Key Activity is Performed Well When:

- All equipment is correctly and safely operated in accordance with laws, regulations and company procedures.
- Barrel dump is safely and correctly performed in accordance with laws, regulations, and company procedures.
- Equipment and tools are properly used in a neat and organized way.
- Lifting is properly and correctly performed.
- Barrel dumping/lifting is effectively performed in conjunction with team member.
- Equipment is properly inspected prior to use.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of barrel dump safety procedures.
- Knowledge of barrel dumping procedures.
- Knowledge of inspection procedures.
- Knowledge of equipment operations.
- Knowledge of leverage.
- Knowledge of correct lifting and pushing procedures.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to analyze situation and consider risks/implications.
- Ability to monitor safe and effective use of equipment.
- Ability to apply appropriate principles, laws, and theories to situations.
- Ability to accept responsibility for own behavior and understand impact on others.

Work Keys

Reading for Information; Locating Information

KEY ACTIVITY

Manually transport chemicals in containers (C3)

Performance Indicators

This Key Activity is Performed Well When:

- Proper equipment is correctly and safely operated in accordance with laws, regulations, and company procedures.
- Transporting of chemicals is safely and correctly performed in accordance with laws, regulations, and company procedures.
- Containers are delivered to the proper area in a timely way with minimal spillage.
- Correct cleanup procedures are thoroughly followed if needed.
- Containers are completely inspected prior to use.
- Correct containers are used for each chemical.
- Containers are correctly labeled and are thoroughly checked to insure proper labeling.
- Problems in manually carrying chemicals are effectively communicated to supervisor in a timely way.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Understanding of all safety procedures and gear.
- Knowledge of manual chemical transport equipment.
- Knowledge of leverage.
- Knowledge of chemicals, chemical containers, their labels, uses, and inspection procedures.
- Knowledge of spill clean up procedures.
- Knowledge of correct lifting and pushing procedures.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to monitor performance standards.
- Ability to interpret chemical use symbols.
- Ability to recognize patterns during inspection.
- Ability to analyze application of learning tools.
- Ability to apply appropriate principles, laws, and theories to situations.
- Ability to respond to verbal and nonverbal communication.

Work Keys

Reading for Information; Locating Information; Observation; Teamwork

CRITICAL WORK FUNCTION: D - PERFORM AND DOCUMENT INSPECTIONS

KEY ACTIVITY

Inspect equipment (D1).

Performance Indicators

This Key Activity is Performed Well When:

- Depth, type of cleaning and time estimates required are carefully determined.
- Equipment is thoroughly and completely inspected in accordance with sanitation requirements.
- Equipment is thoroughly and completely inspected in accordance with laws, regulations, and company procedures.
- Inspections are completed within established time frames.
- Start up times are determined and effectively communicated to appropriate personnel in a timely way.
- Mechanical/safety hazards are effectively communicated to supervisor in a timely way.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of applicable equipment and cleaning instructions.
- Knowledge of sanitation equipment inspection procedures.
- Ability to meet line time frames within company processes.
- Knowledge of time frame for inspections.
- Knowledge of visual, touch, and smell inspection techniques.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to develop and apply creative solutions to new situations.
- Ability to analyze possible causes/reasons.
- Ability to respond to verbal/nonverbal communication and confirm information.
- Ability to identify data/information and predict outcomes.
- Ability to suggest system modifications/improvements.

Work Keys

Reading for Information; Locating Information; Observation; Writing; Teamwork

KEY ACTIVITY

Inspect chemicals (D2)

Performance Indicators

This Key Activity is Performed Well When:

- Chemicals are inspected and refreshed in accordance with laws, regulations, and company procedures
- Chemical inspection schedules are kept in accordance with company procedures.
- Personal protective gear is worn correctly for both touch and airborne chemical contamination.
- Proper tests for concentration are performed where applicable.
- Chemicals are inspected within constraints of personal tolerance for gases/chemicals.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of company procedures and all applicable laws and regulations.
- Knowledge of how to locate information for and perform concentration tests.
- Knowledge of proper chemical spill clean up procedures.
- Knowledge of symptoms of discoloration or inappropriate odors.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to develop and apply creative solutions to new situations.
- Ability to analyze situations and consider risks/implications.
- Ability to respond to verbal/nonverbal communication.
- Ability to apply processes to new information.
- Ability to prepare basic summaries and select methods of communication.

Work Keys

Reading for Information; Observation; Writing; Teamwork

KEY ACTIVITY

Document inspection results (D3).

Performance Indicators

This Key Activity is Performed Well When:

- Inspection results are carefully and properly documented in a timely way.
- Inspection results are properly documented in accordance with company procedures.
- Chemical inspection results are effectively communicated to appropriate personnel in a timely way.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of channels of communication.
- Knowledge of company forms for inspections and documentation.
- Knowledge of documentation laws and regulations.
- Knowledge of proper labeling procedures.
- Knowledge of proper chemical hazard inspection result, work order forms, safety reports and company procedures.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to write simple documents.
- Ability to interpret information.
- Ability to identify data/information.
- Ability to understand computer operation.
- Ability to monitor system performance.
- Ability to prepare basic summaries/reports and select methods of communication.

Work Keys

Reading for Information; Locating Information; Observation; Writing; Teamwork

KEY ACTIVITY

Provide documentation (D4).

Performance Indicators

This Key Activity is Performed Well When:

- HACCP tracking sheets are carefully and thoroughly continued.
- SSOP and/or company mandated sanitation records are carefully and completely continued.
- All records are kept in accordance with laws, regulations, and company procedures.
- All records are updated and communicated to appropriate personnel in a timely way.
- Down times, cleanup, preps, and defrosts are tracked and carefully documented in a timely way.

Technical Skills, Knowledge, and Abilities

To Do This Key Activity Well Workers Must Have:

- Knowledge of the HACCP program and tracking forms.
- Knowledge of company policies.
- Knowledge of SSOP forms and procedures.
- Knowledge of company reporting channels.
- Knowledge of SPC procedures including chemical tracking inspections, and cleaning schedules.

Employability Skills

To Do This Activity Well Workers Must Have:

- Ability to write documents.
- Ability to apply processes to new information.
- Ability to identify data/information and predict outcomes.
- Ability to use imagination to visualize events/activities.
- Ability to understand system organization/hierarchy and follows processes and procedures.
- Ability to monitor/adjust task sequence.

Work Keys

Reading for Information; Locating Information; Observation; Writing

PROMOTABILITY

Many employees want to move to positions with more responsibility and pay. Understanding and doing the job you are currently in is the first step toward consideration for another job. Employees can carefully judge their skills against those required. This allows career advancement and planning. By meeting requirements, employees can expect to earn a higher wage, enjoy greater job security, and expand job opportunities. In cases where employers have certification requirements, these expectations can be met more swiftly.

By learning these skills well, employees will understand what they need to know to succeed in their jobs. They will be able to communicate their skills more effectively. They will be aware of what training is needed for promotions and be able to move between work roles. This will also help achieve higher levels of competence and confidence. These skills will also improve the performance of the team, or work unit. These skills also help in long term planning of career goals within the company.

More information is available regarding other food processing jobs and the standards required for those jobs. This information can help you prepare for other positions within the food processing industry. These jobs are listed in the **‘Skill Standards for Food Processing Workers’** booklet, available with this training material. Included in this book is information about the most common positions within food processing facilities in the Pacific Northwest. See your instructor for more information.

ENVIRONMENT

Food processing plants have many kinds of places to work. You must be extra careful when working to take notice of what the environment is like. Generally, you will be exposed to areas that are wet, hot and/or cold, humid, in some instances muddy, noisy, full of machinery, and a lot of other conditions. It is your job to be watchful, following safety procedures, and being mindful of your activities. If you notice any kind of problem – safety, line operation, procedure/process, or any other, it is your job to let your supervisor know right away so that steps to correct the problem can be taken.

In addition to the physical characteristics of the plant you work in, there will be other environmental aspects. Generally, the work that you do will require that you work with other employees. This will require use of teamwork skills, working, and following directions as a team. Good communication skills will be needed in this kind of environment. Having positive relationships with your co-workers will become important to your success.

The use of high-tech equipment is growing in food processing. Automatic defect removal equipment, computer controlled processes, even robots in some applications, mean that the work that is being done requires more education. Employees must know more, and be willing to learn more, in order to operate and provide these machines. The use of this kind of equipment is growing because businesses are looking for ways to increase effectiveness and reduce cost. One of the most effective ways of doing this is through equipment.

It has been said that one of the constants in life is change. That is also true in the food processing business. Employees must be aware that part of the environment in a food processing plant is one of constant change. This change includes policies and procedures, the people who work in the plant, the machinery used in the plant, and the processes used to make the finished product. Being flexible to all of these changes, and being good at them, is part of the environment all employees will face and be expected to succeed in.

TEAMWORK

ACCOUNTABILITY – ATTENDANCE

It is a normal practice of most companies, including food processors, to have an introductory period for the first few weeks of employment. The introductory period is provided to give new employees a way to show their ability to achieve an acceptable level of performance and to determine whether the new position meets what they're looking for. The company uses this period to judge the employee's capabilities, work habits, and overall performance.

To provide a safe and productive workplace, employees are expected to be reliable and on time in reporting for work. Absenteeism and tardiness place a weight on other employees and on company operations. Each company has determined what it sees as a fair amount of absence because of sickness or emergencies. They realize that there are situations beyond the control of the employee. The company can also expect consistency in attendance from employees, and will have a policy that each employee will be expected to follow.

Usually, the company will have a definition for what good attendance is. Certain reasons and/or conditions may fall outside of a lot of attendance policies, and will be explained by a company representative when you are being trained for a new position. Within the attendance policy, there will be a definition of what the company determines to be an excused absence, unexcused absence, and tardiness. Additionally, there may be extra requirements for excessive absenteeism. However the company defines its attendance policy, employees are expected to let their employer know when they are absent. Failure to comply with this requirement may have negative consequences.

There will be some kind of call-in procedure for employees to follow when they are going to be absent or tardy. Usually, employees are expected to call their supervisor, before the time their shift is scheduled to start. Employees should not rely on friends, relatives, or co-workers to communicate their absence to their supervisor. They should do this themselves.

Employees need to make sure they know the attendance policy of the company they are working for. The ability to be responsible for attendance is one of the most important things an employee can take responsibility for, and is a major factor considered when performance is being judged.

Following the attendance policy is just one aspect of good work place behavior. There are many attributes that employers expect from employees. Being at their work station ready to work is only one of the many expectations and standards that employees must follow in order to be successful.

RESPECTFULNESS

Respectful Conduct

Just as good attendance is important, so is the way employees treat each other. Respectfulness in the workplace is important to good relations with each other, and to job success. The following list was created by employees of a food processing plant. These tips aren't just a list of do's and don'ts, but help people to interact with each other. These tips may represent company policy, and certainly will help employees to be successful on the job.

Workplace Attitude

1. Be on time and give the company their monies worth. They pay you to work, not to gossip, complain, make personal phone calls, etc. Be effective when you're there.
2. Don't stretch your breaks or lunch hour. Don't be a clock watcher. Be willing to stay a few extra minutes to get a job done.
3. Provide good attendance. Make yourself a valuable employee and one that is missed when not there.
4. Be a team player. Don't say, "That's not in my job description," Do what's needed to help the place run smoother, whether it's your job or not. Don't put yourself on a pedestal. Be interested and enthusiastic about being an overall good employee, not just the best secretary, custodian, etc. Take your turn making coffee, distributing mail, etc. If you see something that needs to be done, do it. Be flexible and willing to shift priorities to meet the needs of your department. You want to become known as effective and accommodating!
5. Take the initiative to go on to another task when one is done. Don't wait to be told what needs to be done. Show that you are eager to learn. You need to know your job and how your job affects the overall plant.
6. Don't be afraid to ask questions. We'd rather a person ask than say or do the wrong thing.
7. Loyalty is very important. Trustworthiness is too.
8. *Keep your opinions to yourself.* Gossip just feeds negativity.

9. Try to anticipate the needs of your boss. The difference between an average employee and an excellent one is being able to see what needs to be done and doing it without having to be asked. Balance this with not over-stepping your bounds.
10. Be honest. No one is perfect. If you make an error, say so. Recognize the impact that error had and apologize. Let your boss know that you learned from this and that it won't happen again. Don't ever lie. Honesty **is always** the best policy.
11. Be careful. Whether it is taking a simple phone message or balancing a report. When you take a message, read back the person's name and number, just in case you wrote it down wrong. This is especially important if you're dyslexic or tend to mix up numbers. When completing a report or typing a document, always proofread it before passing it on to your boss. If it's something important or going out for wide distribution, have someone else look over it before making the final copy.
12. Be able to take constructive criticism. Tears are never appropriate in the work place. If you can't control your emotions, go to some place private until you can get control.
13. Control your temper. State your position once, but don't get into a screaming match. If you are in a disagreement with someone and tempers are starting to flare, calmly state your position one more time and say you need to get back to work. Be open-minded. Maybe you're wrong! Accept the possibility that someone else's suggestion is a good one.
14. Don't be one of those people that feel there's only two ways to get something done, a right way and a wrong way. Be open-minded to the idea that there may be two (or more) very good ways to do the same thing. And just because that's the way we've always done it doesn't mean there's not a better way. Be open to new ideas. Don't be set in your ways.
15. Be open to change and don't be afraid to suggest changes if you feel there's a better way. However, if your idea is rejected, accept that and continue on.
16. Negativity is not productive - use your energies in positive ways. Affect those around you with your positive attitude. Don't whine. It keeps things from getting done.

17. When you're having personal problems, do your best to leave them at home. If they are so over whelming that you just can't concentrate on work, ask for some time off to get done whatever will make it easier for you to concentrate on your job. Again, honesty is the best policy. A supervisor would rather a person take a few hours (or days) off than to be upset because this might affect production. If you have to stay on the job, try and concentrate on the job at hand and set your personal problems aside as much as possible.
18. Watch your body language. It's often not what you say but how you say it. Your tone of voice is very important. Remember to smile. Cheerfulness never got anyone fired! A pleasant attitude on a continuing basis is very important.
19. If you have a weak area, offer to take training or get manuals and do some training on your own. You're only helping yourself in the long run, whether it be for this job or some other job.
20. Your day-to-day attitude is important. Will people describe you as a positive, effective, energetic person? If not, maybe you need to work on something.
21. Dress appropriately for the job. There is no excuse, ever, for poor personal hygiene. Don't have dirty fingernails, greasy hair, etc. Even if you can't afford a lot of nice work clothes, buy a couple of inexpensive outfits and keep them clean and pressed. Be sensitive to body odor, heavy perfume, or smoke odors.
22. Find out what's acceptable where you go to work and follow the informal work practices -- having drinks or occasional candy bar at your desk, etc. Beware of chewing gum --especially when it "smacks". That can be offensive to people and viewed as one having poor work habits. It's better to just not chew it on the job.
23. If you run into a bad situation on the job (sexual harassment, discrimination, etc.), try and quietly solve it following appropriate company policies. It's much better to try and solve something within the company before you seek outside agencies. Watch your attitude during the investigation period--no one will fault you for exercising your legal rights but don't go around spreading rumors about supervisors or the company. Just quietly exercise your rights and continue doing the best job you can under the circumstances. Only go to outside sources once appropriate channels within the company have been used up.

INTERPERSONAL SKILLS / COOPERATION

There are a number of skills needed to be successful in getting along well with co-workers. This set of skills is called interpersonal skills. Some of the skills and tips that were listed previously will be repeated here. That is because they relate to respect and cooperation on the job, and are important enough to repeat. Being cooperative means simply willing to work together. At work, this means working with co-workers and supervisors in order to get the work done.

Sometimes there are problems that arise that prevent an employee from getting their work done in an effective way. In these cases, employees need to know what to do and where they can go to find resolution to their problems. Most employers are committed to providing the best possible working conditions for their employees. Part of this commitment is to encourage an open and honest atmosphere in which problems, complaints, suggestions, or questions can be responded to from supervisors and management.

If employees disagree with practices of conduct, policies or practices, they can express their concern through some form of problem resolution procedure. Usually the first step is to present the problem or concern to the supervisor. In some cases the employee may discuss the issue with a different member of management.

The concern will then be addressed by a supervisor or other management. There are usually appeal procedures that can be used if the issue has not been resolved. It is important to follow these procedures when discussing a concern.

Not every problem can be resolved to everyone's total satisfaction, but only through an understanding of problems can employees and management develop confidence in each other. This confidence is important to the operation of an effective and friendly place to work, and helps to make sure a good job is done.

SEXUAL HARASSMENT PREVENTION/ EEO REQUIREMENTS

Please view the following video: **Sexual Harassment: A Matter of Respect**

Your company does not tolerate sexual harassment. It is the goal of your company to remove any form of sexual harassment, to investigate any complaint of sexual harassment, and to take immediate and appropriate disciplinary action if sexual harassment has been found in the workplace. According to the Equal Employment Opportunity Commission (EEOC), sexual harassment consists of unwelcome sexual advances, requests for sexual favors, or other verbal or physical acts of a sexual or sex-based nature where:

1. Submission to such conduct is made either explicitly or implicitly a term or a condition of someone's employment;
2. An employment decision is based on someone's acceptance or rejection of such conduct;
3. Such conduct interferes with someone's work performance or creates an intimidating, hostile, or offensive working environment.

Your company does not allow any employee to take revenge in any way against anyone who has stated any concern about sexual harassment or discrimination against the individual raising the concern or against another individual.

Conduct included as inappropriate is:

1. Physical assaults or other physical conduct of a sexual nature, including unwanted touching;
2. Unwanted sexual advances, propositions, or other sexual comments;
3. Sexual displays or publications anywhere within the workplace; and
4. Taking retaliatory action against an employee for disclosing or making a sexual harassment complaint.

COMPLAINT AND INVESTIGATION PROCESS

If you believe that you are being sexually harassed, you are expected to report the event to a responsible person in your company. This person may be your supervisor, a manager, the head of the company, someone in the human resource department (if applicable), or whoever is used by management as the responsible person. It is important that you let one of these persons know of your concern immediately. You do not have to complain to your supervisor first.

Your complaint will be taken seriously, and investigated promptly. You will be protected from retaliation. Any complaint will be investigated and privacy will be protected as much as possible.

As soon as management is aware of a complaint, an investigation will be conducted. If there is a finding of harassment, immediate and corrective action will be taken, up to and including termination of employment. Employees must be aware that a complaint of harassment can not be ignored, but must be investigated.

Every employer has its own policy about how complaints should be filed, and how they will be investigated.

Your employer will provide you with further training about the specific details of its sexual harassment prevention policy and the details of how to file a complaint.

WORKPLACE VIOLENCE PREVENTION

Overview

Workplace violence is a growing problem for employers in the United States. Homicide is the second leading cause of death in the workplace nationwide. Food processing facilities are working to provide a safe workplace in spite of this challenge. Employers have produced policies to prevent workplace violence. These policies may include site visitors, no-weapons on site policies, background checks prior to employment, various training sessions including diversity and respectfulness, and employee conduct policies and procedures.

Your company will have procedures for what to do if there is a threat of violence, and a complaint process. Additionally, every employer has a policy about harassment prevention. As an employee, you will be expected to work safely, and report behaviors of violence to your supervisor immediately.

Procedures

Your company provides a violence free workplace. In order to provide that, there is a no tolerance policy about workplace violence. All threats, or acts of violence, will be taken seriously. Generally, a threat or act of violence includes: any act or gesture made to harass or intimidate another person, any act or gesture likely to damage company safety, any act or gesture likely to leave another person injured or fearing injury.

All employees are responsible for helping provide a violence free workplace. Each employee is required to control themselves in compliance with workplace policies and procedures. In addition, any employee experiencing an act or threat of violence is asked to report the accident(s) to their immediate supervisor and/or manager.

Generally, employees are not allowed to bring weapons into the work-site, or on company premises. In most cases, this applies to carrying concealed weapons as well. You will be expected to know the specific policy of the company you work for. If you have questions, or concerns about this policy, discuss it with your supervisor.

Each act or threat of violence will be investigated, and appropriate action will be taken. Any such act or threat, may lead to disciplinary action, up to and including termination of employment.

PRODUCTIVITY

Profitability – Rework

Customer Expectations

There is a great deal of information about what customers expect. As consumers, we are all customers when we want to buy something. We are also customers when we receive the work from someone “up stream” from us, in other words, when someone works on a product ahead of us. Let’s say they run the sorting machines. When the product has been sorted, it goes to a peeling operation – at least in a potato plant. The people who work in the peeling operation, are the ‘customers’ of the people who work in the sorting operation. They expect the product to be ready to peel, that it has been properly sorted and prepared. In this way, everyone who works in the plant has a customer – or person who receives their work. These customers are called ‘internal’ customers.

Additionally, there are “external” customers. These are the companies that food processors sell their finished product to. It may be grocery chains, or fast-food companies, or any number of other customers. Each one of these customers has a list of expectations for the way they want their products produced. This list becomes a set of requirements for the food processor to meet. When these requirements are met, the product is said to be a quality product, or to meet standards.

For most employees, their jobs involve satisfying both internal and external customers. If a procedure is not done correctly the first time, two types of problems can exist:

1. **TIME:** If the problem is found while the product is still being produced, fixing the problem will probably take extra time and may involve throwing away raw material. Even if the material can be saved, the extra labor cost required by the fix may destroy the chance for the company to obtain any profit from that batch of product. For example, if the cost of labor is 20% of the cost of the product and the profit margin is 10%, then using twice as much labor time to fix a problem as it took to make the product will cost as much as all of the profit.
2. **MATERIALS:** The second type of problem is the cost of waste or scrap. The cost or value of waste increases as the product moves through the process. Waste must be eliminated as soon as possible. If you throw away a bruised potato as soon as it arrives at the factory, you have only lost the cost of the potato and the cost of sorting it out of the process. If you wait until it has been washed, peeled, sliced, cooked and frozen, the cost goes up with all the water, frying oil, energy, and labor that has been added.

The kinds of things customers want are:

- Products that meet standards, at a reasonable (or agreed upon) cost.
- Friendly, positive service. This goes for everyone in the company.
- The belief that what the customer wants is important.
- Flexibility to change.
- A work-site (where their products are made) that is clean, neat, and looks like a good place to do business. This includes meeting government requirements, and having Good Manufacturing Practices (GMP).

These standards change from time to time. Customers change their requirements, just like we change our requirements (or expectations). These changes must be met by the food processor in order to continue meeting the customer's expectations. Failure to do so can cause a customer to take their business somewhere else. This is the last thing a business wants to happen.

In order to meet changes that a customer may require, a company must continually upgrade its equipment. It must have the ability to make the product in a way that makes a profit. It must have employees who are skilled and flexible enough to make these changes successfully. These changes must be done in a way that does not hurt quality, or delivery of current product.

Customers, whether inside or outside the company, have changing requirements. Successful companies continue to meet those requirements. This is done, primarily, with the work of employees who are able to adjust to these changes, and meet increasing customer expectations.

EMPLOYERS' PURPOSE

Food processing plants employ a lot of people in our community. The purpose for all of these jobs is to make a product that customers will buy. A large portion of these plants make potato related products such as French fries, or other products. But one thing all food processors have in common is that they make these products for a profit.

Profit simply means that after all the bills are paid – including wages – there is money left over. This money is used to make improvements. It is also used to pay the people who invested the money to begin with, so they get some return on their investment. This is important so that they continue to invest their money.

Companies must make a profit in order to stay in business. This is important to employees because if a company cannot stay in business, there will be no jobs. So, what does it take for a company to stay in business?

The company must deliver a product that a customer wants. This means meeting the customer expectation (discussed in the lesson above). A large part of this is meeting the expectation in a way that doesn't cost too much. Just as each person has to live within a budget – or live within the amount of money earned - so a company must live within a budget in order to be successful.

Let's say that a company has a million dollar (\$1,000,000) budget to make 100,000 cases of French fries for Joe Smith Restaurants. French fries must be sold to the customer for \$10.00/case (a customer requirement). The following budget items may be considered by the company:

Machinery to make these fries:	\$500,000	
Building and equipment (furnace, air-conditioner, safety equipment, lights, tools, etc.	\$150,000	
labor (wages) – 20 ppl @ \$10.00/hr.x 80 hrs/month	\$192,000	
Note: this is not full time.		
Administration (payroll, taxes, customer service, janitor, other costs)	\$ 50,000	(2 ppl)
Other costs – licenses, permits, etc.	\$ 50,000	
Total	\$942,000	before profit

We can come to several conclusions from this example:

1. If we hire twenty people to run the equipment, they will not be working full time (40 hrs/week) on this product. If we want them to work full-time (which most employees want to do), then we need to get another customer, or do the work with less people.
2. The cost of the machinery will not change whether we make 1 case or 100,000 cases. So, the way to help make the machinery affordable, is to use it as much as we can.

3. Building and equipment costs won't change very much either. Again, the way to make this cost affordable is to make as much product as we can so that there is more income to pay for these costs. The costs in #2 and #3 are called "fixed costs". They don't change very much whether you make a lot of product or not.
4. In this example, there is \$58,000 profit (potentially). Now that may seem like a lot until you think about what happens if one of the machines breaks? Let's say it costs \$10,000 to fix the machine, and while it was being fixed everyone was waiting for 6 hours. This means \$1200 (20 ppl @ \$10.00/hr) was spent on labor, so the total cost of the repair was \$11,200. That means that in the next year, you now only have \$46,800 dollars to operate with. You can see how it doesn't take very many breakdowns, accidents, or unforeseen circumstances to take away all the profit. We will talk about the effect of downtime more in the next lesson.
5. Whether the work is being done or not, someone has to pay the taxes, talk to the customers, and make the payroll checks. This is all part of administration.
6. All of the above assumptions are based on the belief that the product will be produced correctly the first time. As you can see, there is little room in the budget for errors to happen.
7. This budget example is a very simplified one. The real budgets of a business are much more complex, but may not have much more money than what is in the illustration.

This illustration helps us to understand why it is important for every employee to do their part. This means doing the job correctly, the first time it is done. It means being aware of how important each job is, and taking pride in the work you do. The importance of the work each employee does can be seen in this illustration, because there is a cost connected with everything done in a plant. Keeping these costs contained – within budget – means that the company (and all the employees in it) are successful.

Every employee must be productive. This means meeting expectations concerning:

- output (how much is produced by the employee)
- quality (quantity of errors by the employee)
- dependability (attendance, attentiveness to the job – by each employee)
- adaptability (how well can an employee adjust to changes, new requirements)
- cooperation (willingness to help others, doing a little extra at times)

In short, having a positive work attitude contributes to improved productivity – for everyone.

Companies continue to grow when they are profitable. Profitability only comes by meeting customer expectations, and operating within the budget. It takes everyone in a company to do their part in order for this to happen.

DOWNTIME

Downtime is what happens when the food processing plant, or part of it, is not operating. Generally, this is because of some unplanned event, such as equipment breakdown. Every company has some downtime, but they also work hard to reduce it. Even though the equipment and employees are not working, the cost of these items continues. The payments have to be made to the bank for the equipment; wages must be paid while employees wait for equipment to be fixed; the lights and heater/air-conditioner keep on going whether work is getting done or not; and all the other bills keep “piling up”.

Companies spend a lot of thought and resources to try and minimize, or eliminate, downtime. Every employee is expected to do their part in this effort as well. How can every employee help in reducing downtime?

The first thing employees can do is pay attention to what is going on around them. If there is something that needs to be repaired, tell the supervisor. Keep the work area clean and tidy. This may include helping co-workers clean up, picking up litter or other items that are not yours, etc. It comes from an attitude of helpfulness and interest in a job well done.

The next thing that can be done is to do the job correctly the first time it's done. Make sure procedures are followed. This requires having the skill and qualifications to do the job. It also requires alertness. It is easy to get distracted after doing a job for a while. This is the most critical time to stay alert. Find ways to help stay focused on the job – improving the way things are done, learning something new about the job, checking the work frequently, etc. Ask the supervisor for help with how to stay focused.

Third, know how to properly operate the equipment you use in your job. If there is equipment or tools that you are unfamiliar with, ask for training in proper use. When new pieces of equipment are introduced, learn how to use them before operating them. Make sure you know the proper procedures. If you notice something out of place, notify your supervisor.

Fourth, if an error occurs, let someone know right away. The sooner a problem can be corrected, the less time is spent getting back “on track”. Everyone experiences situations where things don't go as they are supposed to. As soon as you notice this, stop and notify your supervisor. This will reduce the amount of resources spent doing the job incorrectly, which is waste. Remember, every time the right thing is not getting done, the work has to be done over again.

Companies spend a great deal of effort working to prevent downtime. Many have programs called preventative maintenance programs. These programs are designed to repair and maintain equipment before it breaks down. This requires everyone's help to be successful. Observing equipment to see if it is operating correctly, and notifying someone if it is not, can prevent costly downtime. Taking good care of equipment will go far in minimizing downtime.

Look for ways to improve things. This means thoughtfully looking at the work being done, and asking how can I make this better. Most companies have suggestion programs that encourage employees to submit improvement ideas. Many improvements have been made as a result of employee ideas. Every improvement helps increase productivity, and when this happens, everyone wins.

RECOVERY – WASTE

TECHNOLOGY OVERVIEW

The food industry is one of the world's most dynamic economic sectors. Demand for affordable, safe, and convenient food products continues to outpace the abilities of many countries to respond. As the food industry continues to grow, there is increasing pressure to enhance production and processing capabilities. There is also increasing pressure to provide better control over food safety, product quality, and product diversity. These competing challenges offer a number of new opportunities for the use of more sophisticated, computer-controlled, food processing equipment.

There is growing market pressure to deliver a greater choice of value-added products. This is along with increasing concern over available workers, worker safety, and product safety. Because of these concerns, many food processors are focusing their attention on more 'intelligent' automation technologies.

In the United States alone, food processing accounted for over \$351 billion in value of shipments in 1988, and provided nearly 1.5 million jobs, making it one of America's leading manufacturing sectors. Despite this, the demand for affordable food products continues to outpace the ability of food processors to deliver to many parts of the world.

Food processors are focusing more on "intelligent" automation technologies. These technologies take advantage of the growing power and affordability of computers. They also use the growing availability of robotic components.

There are several reasons for this growth in technology. First, labor is a key factor in all food processing operations. Labor provides food processors with the ability to perform complex tasks. They can also operate with more flexibility. Labor also provides important analytical skills needed to screen processes and decide when adjustments need to be made. But labor also brings additional costs such as turnover, worker error, risk of injury, and in many places in the world – short supply of workers to keep a plant at full capacity. Automation helps reduce tasks that are similar to others, and predictable. This allows food processors to run with higher productivity. There is increasing pressure for food processors to maintain flexibility in process operations. As product lines continue to grow, and process changeover times must be reduced, there is more need for technology that can change at a moments notice, with minimum downtime, with little or no product loss or cost.

Another factor is the focus on product quality. This focus has begun to change from defect detection to better process control. Process control technology is moving in the direction of anticipating problems in the first place, and preventing them from happening. This is most evident in the area of food safety. Recent worldwide efforts to implement HACCP (Hazard Analysis and Critical Control Point) programs have also increased the demand for improved technology. With these changes, companies are placing more emphasis on obtaining dynamic technology equipment.

Waste minimization has been important to food processors for a long time. Plants have had to accept a certain amount of waste as inevitable. This waste has been caused by human error, machine error, and technology unable to respond to changing process conditions. The food processing industry is one that operates on very thin profit margins. As a result, product waste elimination will continue to be a very important consideration regarding technology improvements.

The food processing industry wants robotics that can meet the unique performance needs of the industry. Equipment designers are turning more to “smart” processing systems. These systems are capable of interpreting dynamic product and process conditions. They can respond to these conditions rapidly. There is greater computer integration on the manufacturing floor. This provides better control of processing information. It allows automatic transfer of production run information. This newer technology can take an orders put it into the scheduling system, and into the process control system on the shop floor for improved efficiency. As consumer demand continues to increase, the need for increasingly complex equipment will increase as well.

These changes will increase the need for employees who are skilled in the operation and maintenance of this equipment. As the equipment becomes more complex, so will the skills required to operate this equipment become more complex. Preparing for these challenges will provide great opportunity for those who put in the effort now.

IMPORTANCE OF EACH EMPLOYEE

Every employee is important. The job you do is important. You are needed by your company to do a wide range of tasks, requiring many different skills. Your skills, qualifications, and knowledge help make your company a better place.

Each employee has an important part to play in productivity. Some companies will ask you to participate in team problem solving activities. These are groups that work on problems related to the work that you do. Your input is important. The ideas you have to share may help reduce a safety hazard, or improve productivity, or quality. Any of these ideas are worth putting some energy into.

One area of particular interest to every employer is reducing scrap, or waste. Any waste that can be reduced, or eliminated, is money saved. And money saved is good for you and the company. Remember in the lesson about employer purpose, where we discussed the profitability of a company? Here is an area where you can have great influence. Finding ways to control waste, means that more work is done correctly the first time. This is vital to the profitability of any company.

Every employee can do a little bit. By looking at the work you receive from your “supplier” and determining if there are ways to reduce the amount of waste, you will help make your job easier. The closer to the beginning - or front end - of the process you can reduce waste, the more savings will be gained because there is less “value-added” work done to the product. This effort reduces costs.

Attitude can help reduce waste. When an employee has the attitude that they can help a company be successful, they are more likely to discover areas that can be improved. They are more likely to listen carefully to co-worker concerns, and thereby contribute to improvements. They are more likely to come up with ideas that improve productivity as well.

This does not mean employees are expected to work harder. In fact, working smarter is what improvement is all about. Thinking about the work, and how to improve it, is the mark of committed employees. They look for ways to make things easier, more effective. Perhaps, it's listening to how a machine operates and recognizing when it isn't operating the same way. This may be an early sign of equipment failure. Discussing this with your supervisor, and potentially eliminating equipment downtime, is an example of working smarter - not harder.

Becoming involved in training is important. Any improvement in skill will better equip an employee for other tasks. This may even result in promotion or advancement. As discussed in the lesson about technology, there is a growing need for people who can keep up with new technology. Employees who have additional training will be natural candidates for jobs associated with improved technology. And these skills are always valuable to an employee. They equip one for other opportunities that arise in their area of interest. Enhanced training is good for a community.

QUALITY

FOOD CONTACT/NON-CONTACT

OVERVIEW

The Food and Drug Administration (FDA) defines what food contact surfaces are, and what requirements there are to keep them in safe sanitary (food safe) condition. Below is the regulation that applies, which states what must be done by food processors. Each food processing plant will have specific policies and procedures to follow these requirements. It is important to understand the general requirements, in order to be successful as an employee in this kind of environment.

Food contact surfaces **are those surfaces that contact human food and those surfaces from which drainage onto the food or onto surfaces that contact the food ordinarily occurs during the normal course of operations.** This includes utensils and food contact surfaces of equipment.

Below are the requirements for keeping a plant in food safe condition.

1. Food-contact surfaces used for manufacturing or holding low-moisture food shall be in a dry, clean condition at the time of use. When the surfaces are wet-cleaned, they shall, when needed, be cleaned and thoroughly dried before subsequent use.
2. In wet processing, when cleaning is needed to protect against microorganisms getting into food, all food-contact surfaces shall be cleaned before use and after any break during which the food-contact surfaces may have become contaminated. Where equipment and utensils are used in a ongoing production operation, the utensils and food-contact surfaces of the equipment shall be cleaned as needed.
3. Non-food-contact surfaces of equipment used in the operation of food plants should be cleaned as much as possible to protect against contamination of food.
4. Single-service articles (such as utensils made for one-time use, paper cups, and paper towels) should be stored in appropriate containers and shall be handled, supplied, used, and thrown away in a way that protects against contamination.
5. Cleaning agents shall be acceptable and safe under conditions of use. Any plant procedure, or machine, is acceptable for cleaning equipment and utensils if it is ensured that the plant procedure, or machine will routinely make equipment and utensils clean.

6. Cleaned portable equipment with food-contact surfaces and utensils should be stored in a location and in a way that protects food-contact surfaces from contamination.

REQUIREMENTS

The law defines the requirements for keeping a food processing plant clean. These requirements are summarized below with the full text of the regulation attached to this training packet as an appendix. As an employee you will be expected to meet these standards. You may ask your supervisor to help explain parts you may not understand.

All tasks performed in:

- Receiving
- Inspecting
- Transporting
- Separating
- Preparing
- Manufacturing
- Storing

of food must follow sanitation principles.

There will be quality control done to make sure that food is safe for people to eat. Food packaging must be safe for food as well. Sanitation work must have a supervisor in charge. Care must be taken so that contamination doesn't get into food because of the work that is done. Different kinds of tests will be done to identify where sanitation needs improvement. Tests will also be done to stop food contamination. All food that has become contaminated must be thrown out.

1. Raw materials will be handled in a way that prevents contamination. Raw materials will be washed to remove dirt and other contamination. Containers holding raw materials will be inspected and kept clean to prevent contamination.
2. Raw materials will have microorganisms at levels that prevent food poisoning or other diseases.
3. Raw materials must have toxin levels controlled before being used in food.
4. Raw material and other ingredients that could be contaminated must meet standards set by the government.
5. Food materials will be stored at temperatures that prevent them from becoming

contaminated.

6. Frozen material must be kept frozen. If it must be thawed, it will be done in a way that prevents spoiling.
7. Liquid or dry materials must be stored in a way that protects from contamination.

Manufacturing Operations

1. Equipment and tools must be kept clean.
2. Food processing must be done in a way that prevents contamination. Testing must be done to make sure food is produced safely.
3. Microorganisms can grow rapidly in food. Food processors must make food products in a way that prevents microorganisms from growing.
4. There are a number of acceptable ways to prevent the growth of microorganisms. Some of these methods include:
 - Sterilizing
 - Irradiating
 - Pasteurizing
 - Freezing
 - Refrigerating
 - Controlling the pH
5. Work in progress must be protected from contamination.
6. Finished food must be protected from contamination.
7. Equipment and tools must be made and used in a way that prevents contamination.
8. Companies must use many ways to make sure that metal does not get into food.
9. Contaminated food must be thrown away in a way that prevents contamination of other food. If it can be salvaged, it must be done in a way that does not contaminate other food.
10. All the different machines and methods used to make food must be cleaned in a way that prevents contamination of food. This includes cleaning all food contact surfaces.

- 11.** Food that is blanched must be cleaned in a way that prevents contamination. The standard defines specific steps that need to be taken.
- 12.** Filling, assembling, and packaging must be clean and sanitary.

FOOD SAFETY

MICRO-ORGANISMS

Microorganisms are small, living organisms including yeasts, molds, bacteria, and parasites. Some are beneficial and allow for the production of bread, cheese, wine and antibiotics. Others cause foods to spoil (e.g., mold) and yet others, called pathogens, make people sick by producing toxins or poisons.

Microbes are found everywhere and can be moved to food by insects, utensils, equipment, hands, air, dust, and water. The requirements for microbial life and growth are similar to that of humans - food, water, warmth, and in some cases, oxygen. They like the food we do and by growing in the food, may cause it to spoil or may cause human illness. In food processing, the goal is to take steps to: reduce microbial levels, remove microorganisms, and/or control their growth.

Bacteria are single-cell organisms that "grow" by dividing in two. Given the optimum conditions of nutrients, oxygen and temperature, a bacteria may divide every 7 to 20 minutes, thereby doubling the bacterial population. This means that if there is one cell present at first, there may be 512 cells present after 1 hour, 262,000 in two hours, and 4 million cells in 22 hours. As few as 500,000 cells of certain pathogens can cause food poisoning; 10,000,000 can cause food to spoil.

Food processors play a crucial role in minimizing contamination of the product. Providing satisfactory cleaning procedures is important in controlling health hazards.

DEFINITION OF TERMS:

The following definitions are taken from the definitions and understandings of terms in section 201 of the Federal Food, Drug, and Cosmetic Act. They are applicable to such terms when used in this part. The following definitions shall also apply:

1. **Acid foods or acidified foods** means foods that have an balance pH of 4.6 or below.
2. **Satisfactory** means that which is needed to complete the purpose of keeping with good public health practice.
3. **Batter** means a semi-fluid substance, usually composed of flour and other ingredients, into which main components of food are dipped or with which they are coated, or which may be used directly to form bakery foods.

4. **Blanching**, except for tree nuts and peanuts, means a prepackaging heat treatment of foodstuffs for enough time and at a satisfactory temperature to completely inactivate the naturally occurring enzymes and to affect other physical or biochemical changes in the food.
5. **Critical control point** means a point in a food process where there is a high probability that unsafe control may cause, allow, or contribute to a hazard in the final food.
6. **Food** means food that includes raw materials and ingredients.
7. **Food-contact surfaces** are those surfaces that contact human food and those surfaces from which drainage onto the food or onto surfaces that contact the food ordinarily occurs during the normal course of operations. "Food-contact surfaces" include utensils and food-contact surfaces of equipment.
8. **Lot** means the food produced during a period of time suggested by a specific code.
9. **Microorganism** means yeasts molds, bacteria, and viruses. The term "undesirable microorganisms" includes those microorganisms that are of public health significance, that subject food to decomposition, that indicate that food is contaminated with filth, or that otherwise may cause food to be contaminated. Occasionally in these regulations, FDA used the adjective "microbial" instead of using an adjectival phrase containing the word microorganism.
10. **Pest** refers to any objectionable animals or insects including birds, rodents, flies, and larvae.
11. **Plant** means the building used for the manufacturing, packaging, labeling, or holding of human food.
12. **Quality control operation** means a planned and systematic procedure for taking all actions needed to prevent food from being contaminated.
13. **Rework** means clean, uncontaminated food that has been removed from processing for reasons other than unsanitary conditions or that has been successfully reconditioned by reprocessing and that is suitable for use as food.

14. **Safe-moisture levels** is a level of moisture low enough to prevent the growth of undesirable microorganisms in the finished product under the conditions of manufacturing, storage, and distribution. The maximum safe moisture level for a food is based on its water activity (**aw**). An **aw** will be considered safe for a food if there is satisfactory data available that shows the food at or below the given **aw** will not support the growth of undesirable microorganisms.
15. **Sanitize** means to satisfactorily treat food-contact surfaces by a process that is effective in destroying vegetative cells of microorganisms of public health significance, and in substantially reducing numbers of other undesirable microorganisms, but without affecting the product or its safety for the consumer.
16. **Shall** is used to state mandatory requirements.
17. **Should** is used to state recommended or advisory procedures or identify recommended equipment.
18. **Water activity (aw)** is a measure of the free moisture in a food and is the quotient of the water vapor pressure of the substance divided by the vapor pressure of pure water at the same temperature.

FOREIGN MATERIAL

Foreign material is anything that is not there naturally. For example, in potato processing plants, the only thing that should be on the line is potatoes. Everything else on the line is FOREIGN MATERIAL. Examples of foreign material found on the lines include: rocks, bottles, glass, metal and parts of cans, corn cobs, tools, hats, knives, jewelry, plastic, hair nets, wood and gloves. As the potatoes become more processed, removing foreign material from the product becomes more important. Of all the foreign material, the most hazardous is GLASS. The reasons for this are that not only is glass hard enough to break or jam machinery, but glass is also a material that will not be picked up by metal detectors. In addition, people eating the product can break teeth or have other medical problems because of glass.

SANITATION

General Introduction

The goal of every food processor is to identify possible hazards associated with their product, processing and distribution, which would compromise the safety and quality of the food. Processors must control hazards that pose a health risk to the consumer.

Hazards in food can be: Chemical, physical, or microbiological:

They can enter the food at any stage, from growing and harvesting, through to the point of purchase or consumption. Some ways to control hazards include: Selecting ingredients from fields where agricultural chemical use is controlled and from waters where industrial pollution and hazardous microorganisms are known to be below maximum allowable limits [Safe use of chemical food additives, cleaning chemicals; labeling products containing nuts; and avoiding the use of moldy ingredients.] Safe ingredient selection and thorough sanitation and hygiene, in processing and packaging, can control microbial contamination. The nature of microbes, and the widespread effects of microbial contamination, makes controlling these hazards very challenging to food processors.

Why do Workers Need to Wear Clean Clothing?

People working in the fields may not have to wear clean clothing all the time. However, people working with food items must wear clean clothing each day. Clean clothing helps keep the product clean. Clothing may look clean, but if it is dirty or has not been washed for a long time, then it is probably full of bacteria or germs that could affect the product. Try to keep your clothes clean. If they get dirty, be sure to take them home to wash them. Remember that we're working around food. Since you are working with food items, you are required to wear clean clothing each day. You may have an apron to wear to protect you and your clothes. Be sure to keep it clean. Do not wear loose clothing around machinery or in the belts. **DO NOT WIPE YOUR HANDS ON YOUR CLOTHING TO DRY THEM BECAUSE THIS IS NOT A CLEAN PRACTICE.**

The Food and Drug Administration states what must be done in a food processing facility in order to meet the requirements for sanitation. These are the conditions that you would be helping to fulfill while working in a food processing plant.

Sanitary Operations:

1. **General maintenance:** Buildings, fixtures, and other physical facilities of the plant shall be continued in a sanitary condition and shall be kept in repair satisfactory to prevent food from becoming contaminated. Cleaning of utensils and equipment shall be conducted in a way that protects against contamination of food,

food-contact surfaces, or food-packaging materials.

2. Substances used in cleaning and storage of toxic materials.

- (a) Agents used in cleaning procedures shall be free from undesirable microorganisms and shall be safe and satisfactory under the conditions of use. Compliance with this requirement may be achieved by any effective means including purchase of these substances under a supplier's guarantee or certification, or examination of these substances for contamination. Only the following toxic materials may be used or stored in a plant where food is processed or exposed:
 - (i) those required to provide clean and sanitary conditions;
 - (ii) those needed for use in laboratory testing procedures;
 - (iii) those needed for plant and equipment maintenance and operation;
 - (iv) those needed for use in the plant's operations.
- (b) Toxic cleaning compounds, sanitizing agents, and pesticide chemicals shall be identified, held, and stored in a way that protects against contamination of food, food-contact surfaces, or food-packaging materials. All relevant regulations published by other Federal, State, and local government agencies for the application, use, or holding of these products should be followed.

3. Pest control: No pests shall be allowed in any area of a food plant. Guard or guide dogs may be allowed in some areas of a plant if the presence of the dogs is unlikely to result in contamination of food, food-contact surfaces, or food-packaging materials. Effective steps shall be taken to exclude pests from the processing areas and to protect against the contamination of food on the premises by pests. The use of insecticides or rodenticides is allowed only under precautions and restrictions that will protect against the contamination of food-contact surfaces, and food-packaging materials.

4. Sanitation of food-contact surfaces: All food-contact surfaces, including utensils and food-contact surfaces of equipment, shall be cleaned as frequently as needed to protect against contamination of food.

Sanitary Facilities and Controls:

Each plant shall be equipped with satisfactory sanitary facilities and accommodations including,

- 1. Water supply:** The water supply shall be satisfactory for the operations and shall be derived from a satisfactory source. Any water that contacts food or food-contact surfaces shall be clean. Running water at a suitable temperature, and under pressure as needed, shall be provided in all areas where required for the processing of food, for the cleaning of equipment, utensils, and food-packaging materials or for employee sanitary facilities.
- 2. Plumbing:** Plumbing shall be of satisfactory size and design and satisfactory installation and continue to:
 - (a) Carry satisfactory quantities of water to required locations throughout the plant.
 - (b) Safely convey sewage and liquid disposable waste from the plant.
 - (c) Avoid constituting a source of contamination to food, water supplies, equipment, or utensils or creating an unclean condition.
 - (d) Provide satisfactory floor drainage in all areas where floors are subject to flooding-type cleaning or where normal operations release or discharge water or other liquid waste on the floor.
 - (e) Provided that there is not back-flow from, or cross-connection between, piping systems that discharge waste water or sewage and piping systems that carry water for food or food manufacturing.
- 3. Sewage disposal** shall be accomplished by a satisfactory sewage system or disposed of through other satisfactory means.
- 4. Toilet facilities:** Each plant shall provide its employees with satisfactory, easily accessed toilet facilities. This requirement may be accomplished by:
 - (a) Providing the facilities in a sanitary condition.
 - (b) Keeping the facilities in good repair at all times.
 - (c) Providing self-closing doors.
 - (d) Providing doors that do not open into areas where food is exposed to airborne contamination, except where alternate means have been taken to protect against such contamination (such as double doors or positive airflow systems).

5. **Hand-washing facilities:** Hand washing facilities shall be satisfactory and convenient and be furnished with running water at a suitable temperature. This requirement may be accomplished by providing:
- (a) hand washing and, where appropriate, hand-sanitizing facilities at each location in the plant where good sanitary practices require employees to wash and/or sanitize their hands
 - (b) effective hand-cleaning preparations
 - (c) sanitary towel service or suitable drying devices
 - (d) devices or fixtures, such as water control valves, so made and constructed to protect against re-contamination of clean hands
 - (e) readily understandable signs directing employees handling unprotected food, unprotected food-packaging materials, of food-contact surfaces to wash their hands before they start work, after each break from post of duty, and when their hands may have become contaminated. These signs may be posted in the processing room(s) and in all other areas where employees may handle such food, materials, or surfaces.
 - (f) Garbage receptacles that are built and maintained in a way that protects against contamination of food.
6. **Rubbish and offal disposal:** Rubbish and any offal shall be so conveyed, stored, and disposed of as to minimize the development of odor, minimize the potential for the waste becoming an attractant and harborage or breeding place for pests, and protect against contamination of food, food-contact surfaces, water supplies, and ground surfaces.

When working in a sanitation position, employees will:

- handle and use chemicals in a safe and effective way
- clean areas and equipment, using cleaning utensils and chemicals
- operate equipment, and be able to follow lockout/tagout procedures
- wear personal protective equipment that may include a wet suit, goggles, gloves, boots, and other equipment

Sanitation is an important part of making sure that microorganisms are controlled and food is safely produced. Individuals in sanitation positions need to understand the purpose and operation of the sanitation function, and make decisions based on sound judgment when a situation dictates.

GOOD MANUFACTURING PRACTICES (GMP's)

The FDA has identified **Good Manufacturing Practices** (GMP's) that provide the legal guidelines within which any company producing food products must operate to make sure that its products are prepared, packed, and held under clean and sanitary conditions. Since any violation of a GMP can result in product recall and/or a plant shutdown by the FDA, each employee is required to do all job assignments in compliance with the GMP's. In addition to the policies set forth by the FDA, each company may have a set of GMP's that are more specific to their business. The following list comes from the FDA regulations.

The criteria and definitions in this part shall apply in determining whether a food is contaminated in that the food has been manufactured under such conditions that it is unfit for food; or that the food has been prepared, packed, or held under unsanitary conditions and may have become contaminated.

Food covered by current good manufacturing practice regulations is subject to the requirements of those regulations.

Health Service Act:

Food covered by specific current good manufacturing practice regulations also is subject to the requirements of those regulations.

Personnel:

The plant management shall take all fair steps and precautions to make sure of the following:

Disease control:

Any person who, by medical examination or supervisory observation, is shown to have an illness, or open lesion (including boils, sores, or infected wounds) by which there is a possibility of food, food-contact surfaces, or food-packaging materials becoming contaminated, shall be excluded from any operations which may be expected to result in such contamination until the condition is corrected. Personnel shall be instructed to report such health conditions to their supervisors.

Hygiene:

All persons working in direct contact with food, food-contact surfaces, and food-packaging materials shall conform to hygiene practices while on duty to the extent needed to protect against contamination of food. The methods for providing hygiene include:

Providing Satisfactory Personal Hygiene:

- (a) Wearing outer garments suitable to the operation in a way that protects against the contamination of food, food-contact surfaces, or food-packaging materials.
- (b) Washing hands thoroughly (if needed to protect against contamination with undesirable microorganisms) in a satisfactory hand-washing facility before starting work, after each absence from the work station, and at any other time when the hands may have become contaminated.
- (c) Removing all unsecured jewelry and other objects that might fall into food, equipment, or containers, and removing hand jewelry that cannot be cleaned reasonably during periods in which food is handled by hand. If such hand jewelry cannot be removed, it may be covered by material which can be continued in an intact, clean, and sanitary condition and which effectively protects against the contamination by these objects of the food, food-contact surfaces, or food-packaging materials.
- (d) Providing gloves, if they are used in food handling, in an intact, clean condition. The gloves should be of thick materials.
- (e) Wearing, where needed, hairnets, headbands, caps, beard covers, or other effective hair restraints.
- (f) Storing clothing or other personal belongings in areas other than where food is exposed or where equipment or utensils are washed.
- (g) Confining the following to areas other than where food may be exposed or where equipment or utensils are washed: eating food, chewing gum, drinking beverage's, or using tobacco.
- (h) Taking any other needed precautions to protect against contamination of food, food-contact surfaces, or food-packaging materials with microorganisms including perspiration, hair, cosmetics, tobacco, chemicals, and medicines applied to the skin.

Education and training:

Workers responsible for identifying sanitation failures or food contamination should have a background of education or experience to give a level of ability needed for production of clean food. Food handlers and supervisors should receive appropriate training in safe food handling techniques and food-protection principles and should be informed of the hazard of poor personal hygiene and unsanitary practices.

Supervision:

Responsibility for assuring compliance by all personnel with all requirements of this part shall be clearly assigned to able supervisory personnel.

Grounds:

The grounds of a food plant, under the control of the operator, shall be kept in a condition that will protect against the contamination of food. The methods for satisfactory maintenance of grounds include, but are not limited to:

- Safely storing equipment, removing litter and waste, and cutting weeds or grass around the plant buildings or structures that may provide an attractant, breeding place, or harborage for pests.
- Providing roads, yards, and parking lots so that they do not provide a source of contamination in areas where food is exposed.
- Satisfactory draining areas that may contribute contamination to food by seepage, foot-borne filth, or providing a breeding place for pests.
- Using systems for waste treatment and disposal in a satisfactory way so that they do not constitute a source of contamination in areas where food is exposed.
- If the plant grounds are bordered by grounds not under the operator's control and not continued in the way described in the first paragraph of this section, care shall be exercised in the plant by inspection, extermination, or other means to exclude pests, dirt, and filth that may be a source of food contamination.

Plant construction and design:

Plant buildings and structures shall be suitable in size, construction, and design to facilitate maintenance and sanitary operations for food-manufacturing purposes. The plant and facilities shall:

- Provide satisfactory space for such placement of equipment and storage of materials, as needed, for the maintenance of sanitary operations and the production of clean food.

- Permit the taking of safe precautions to reduce the potential for contamination of food, food-contact surfaces, or food-packaging materials. The potential for contamination may be reduced by satisfactory food safety controls and using practices or effective design, including the separation of operations in which contamination is likely to occur, by one or more of the following means: location, time, partition, air flow, enclosed systems, or other effective means.
- Permit the taking of safe precautions to protect food in outdoor-bulk fermentation containers by:
 - Using protective coverings
 - Controlling areas over and around the container to remove harborage for pests.
 - Checking on a regular basis for pests and pest infestation:
 - Skimming the fermentation containers, as needed.
- Be built in such a way that floors, walls, and ceilings may be satisfactory cleaned and kept clean and in good repair; that drip from fixtures, ducts and pipes does not contaminate food, food-contact surfaces, or food-packaging materials; and that aisles or working spaces are provided between equipment and walls that are unobstructed and are of satisfactory width to permit employees to do their duties and to protect against contaminating food or food-contact surfaces with clothing or personal contact.
- Provide satisfactory lighting in hand-washing areas, dressing and locker rooms, and toilet rooms and in all areas where food is examined, processed, or stored and where equipment or utensils are cleaned; and provide safety-type light bulbs, fixtures, skylights, or other glass hanging over exposed food in any step of preparation or otherwise protect against food contamination in case of glass breakage.
- Provide satisfactory circulation of air or control equipment to minimize odors and vapors (including steam and noxious fumes) in areas where they may contaminate food; and locate and operate fans and other air-blowing equipment in a way that decreases the potential for contaminating food, food-packaging materials, and food-contact surfaces.
- Provide, where needed, satisfactory screening or other protection against pests.

Below is a list of typical GMP's that you could be expected to adhere to:

Any action by an employee that either causes or has the potential of causing the contamination of the product is not allowed. This includes the following specific practices:

1. Food contact surfaces must be cleaned only with tools used for food contact surface cleaning. These tools must not, at any time, touch a contaminated surface such as the floor, an employee's clothing, etc. These tools must either be in use cleaning food contact surfaces or stored in their safe place on a food contact tool board. Never replace dirty tools to a food contact board.
2. Floors and other non-food contact surfaces must be cleaned only with tools used for non-food contact surfaces. A non-food contact tool must never be used in contact with the food product. These tools are to be stored in their safe place on a non-food contact tool board at all times when not in use.
3. Use of chewing tobacco and snuff anywhere on the plant premises is not allowed.
4. The chewing of gum and the carrying of any foreign object in an employee's mouth is not allowed in the processing, packaging, warehousing and other used areas.
5. Glass in any form is not allowed in the processing, packaging, and warehousing areas. Glass must not be carried into these areas and equipment containing glass in any form must not be installed in these areas of the plant. Any accident of glass breakage anywhere in the plant requires immediate investigation and it is the employee's duty to report the breakage to their immediate supervisor or to where all accidents of glass breakage are logged.
6. Employees must not carry food or beverages into the processing, packaging, or warehousing areas. The company may provide a limited number of drink stations in the plant. Employees must consume the drink provided at the location of the drink station and any drink containers must be disposed of in a waste container at the drink station.
7. Personal items may not be taken into the processing area.
8. All employees must wash their hands before leaving the rest room.
9. Employees who handle the food product as part of their job assignment (Trimmer, Packaging Operator, Helper, etc.) must wash their hands before starting work and after each absence from the work station. Employees must not touch the product with an unsanitary hand for any reason.

10. Excessive lubrication of any equipment that has the potential of contaminating the food product is not allowed. Extreme care must be exercised by each employee who is responsible for lubricating plant equipment to not over lubricate and to clean up any excessive lubrication.
11. All employees in the processing and packaging area are required to wear clean and neat outer garments of clothing appropriate to the job duties at all times. Sweats and tank tops are not allowed. Any employee reporting to work in these food-contact areas with soiled, torn or dirty outer garments will be restricted from working until the employee's clothing is satisfactory.
12. Any employee or visitor who enters the receiving, processing, packaging or plant warehouse areas must remove all items from the shirt or overall pocket. Shirt or overall pockets must remain empty at all times while in the above areas.
13. Certain personal items may be worn either for the protection and safety of the individual or for the effective performance of his or her job. These items must be considered a possible source of contamination to the final product.
 - (a) People required to wear prescription glasses, and whose job assignment requires them to be in an area of exposed product, will wear safety lens with athletic strap fasteners to prevent them from falling into the product.
 - (b) Employees must wear earplugs in designated areas of the plant. The earplugs will be the type that can be fastened to the scalp guard or otherwise secured to prevent them from falling into the equipment or product flow. Any departure for medical reasons must be approved by management and be supported by a doctor's statement.
 - (c) Employees and visitors entering receiving, processing, packaging, and warehouse areas will remove necklaces, earrings, brackets, wristwatches, and rings. A plain wedding band without stones may be worn. It will be acceptable for individuals to keep watches in pants pockets.
 - (d) Items such as hairpins of any type, barrettes, clips, and rollers will not be worn in the processing, packaging, or warehouse areas. Metal barrettes, 2"x1/4" or larger, and rubber bands are acceptable items for controlling long hair when used under a company approved hairnet.
14. Employees working in direct contact with product with bandages or any type of sores or open cuts on their hands or arms, will be required to wear tight fitting gloves and/or arm guards.

- 15.** All employees working in processing, packaging, and plant warehousing areas shall wear hairnets and a bump cap or hard hat. Trimmers, palletizer's and lab technicians are not required to wear scalp-guards, in addition to hairnets, while working in their assigned areas. Employees in receiving must wear bump caps but are not required to wear hairnets. [Employees at the Larson Warehouse are not required to wear bump caps or hairnets.]
- (a) Bump caps, hard hats, hairnets and other hair restraints will be provided by the company. Only these restraints will be allowed.
 - (b) The hairnets will be worn over the ears and down onto the forehead covering all hair including long-neck hair. If the hair is too long to be contained within a hair net while hanging loose, the hair will be required to be pinned, braided, or otherwise gathered together under the net and not allowed to fall from under the net at any time. Hair must conform to the contour of the head and must not extend below the collar line of a conventional dress shirt in back.
 - (c) Operators of welding or cutting equipment actually in the act of welding or cutting and wearing goggles or a welding mask may wear a welder's cap without a hair net. A net must be worn during travel to and from the job and while not actually welding or cutting on job site.
 - (d) Sideburns are acceptable when they are kept neatly trimmed to avoid being bushy and when they do not extend below the bottom of the ear lobe. No "mutton chop" style sideburns are allowed.
 - (e) In many food-processing plants, employees are not allowed to wear beards.

SAFETY

OVERVIEW

GENERAL SAFETY

Safety is the responsibility of all employees. Your employer has an honest commitment to safety practices. Safety practices are written to help teach all employees the safest way to do the work at hand. Through training and continuous attention to good practices, your employer hopes to create a safe working plant for all its employees. No job is so urgent that time cannot be taken to do the job the right way, the safe way. A lot depends on you. You have a responsibility to work safely at all times. It is the view of the employer that will think about and use your knowledge of safety in both your work and your home. In this way, you will benefit the company and, most importantly, yourself and your family. Some safety guidelines may be unclear and so their success will depend on the good decisions you use in doing your job. If you don't understand a rule, don't go ahead and take chances. Your supervisor is responsible for helping you make good decisions about safe work practices.

Think before you act! The most important safety tool you have is your brain. If your supervisor asks you to do something and you're not sure how to do it, ask your supervisor or someone else who knows.

Report and help remove unsafe conditions. If you notice an unsafe condition, or practice, tell your supervisor. Your supervisor may be able to fix the condition right away, quickly make changes to the practice, or show you a better way of doing the task to make it safer. Work should not go on until the unsafe condition or practice had been taken care of in some way.

If you are hurt, get the medical help you need and report the accident. All supervisors are taught first aid and CPR and can help you if you are hurt. All injuries, no matter how minor, need to be reported to your supervisor.

Put away your tools, PPE (Personal Protective Equipment), trash, etc. When you are done with a tool, put it back where it belongs. Not cleaning up causes injuries and wastes time, energy and material. When tools and equipment are not put away after use, they might get lost or damaged. If you're not sure where something goes, ask your supervisor or a co-worker. Tools should go back in tool-boxes, trash should go in trash cans or scrap piles, and used PPE should either be put in lockers or thrown out.

Help keep your workplace clean. All employees need to clean up after themselves. Don't leave trash for others to clean up. Being clean is important to providing a healthy place to work. If you find an area needing a trash can, let your supervisor know. Due to Good Manufacturing Practices (GMP) guidelines, chewing tobacco and gum cannot be used inside food processing buildings.

There will be no spitting allowed inside buildings.

Everyone should wear clothing made for the work to be done. Loose clothing and dangling jewelry can get caught by equipment, machinery, or tools and should not be worn.

Protect your feet by wearing safe footwear. Everyone must wear shoes made for the job. If there is a risk of chemical or hot liquid exposure, shoes must cover the ankle. For people working inside food processing plants, a non-slip bottom is also required. High boots, covering the calf, are recommended in muddy areas to help protect employee's legs.

Protect your head by wearing your hard hat. Hard hats are required in all areas where there are falling or flying objects. Hard hats, bump caps, are also needed where employees could bump their heads on low piping or other equipment.

Protect your eyes by wearing safety glasses, goggles, or face shields. Safety glasses, goggles and/or face shields must be worn whenever there is a risk of flying objects.

Respect barriers, signs, and labels. Respect, and do not enter, any areas marked by CAUTION or HAZARD tape unless you are given permission by those working in the area. If you put up a barrier or sign, remove it once it is no longer needed. Pay attention to signs and labels that are marked hazards. If a sign or label becomes damaged or unreadable, let your supervisor know so it can be replaced.

YOU ARE THE PERFECT MACHINE – PROTECT IT

HEART

No pump is as perfect, if you treat it right.

EYES

No camera can touch them for efficiency.

NERVOUS SYSTEM

No telegraph system equals it.

VOICE AND EARS

Better than any radio ever built.

NOSE, LUNGS, SKIN

There is no ventilating plant as wonderful.

SPINAL CORD

Cannot be beat by the most complete
switchboard for giving instructions, warnings
and reactions

Such a marvelous, and highly complicated, machine as you is worthy of your highest respect and best care. Protect yourself today, tomorrow and always. You are your own best safety device.

Regardless of where you work, there is a possibility that an accident can cause personal injury and a fire could destroy your way to earn a living.

Safety is a well thought out and planned series of practices, which are needed to protect you. “The perfect machine”, however, needs your full cooperation in order to be successful.

These general safe practices are provided for your safety. It is your responsibility to know, and follow, the safety practices of the company you work for.

PERSONAL PROTECTIVE EQUIPMENT

INTRODUCTION – SAFE PRACTICES

Please watch the following video: **Personal Protective Equipment In General Industry**

The most important safety tool you have is your brain. Think before you act and use common sense. If your supervisor asks you to do something and you're not sure how to do it, ask your supervisor or someone else who does. You deserve answers to your questions. Your safety depends on you being safe at all times.

Workers in all plants must wear certain equipment in order to protect themselves and the product they are working with. Most plants require all workers to wear a hat of some type to protect their heads. In noisy plants or places, workers protect their hearing by wearing earplugs. Workers wear gloves to protect their hands from heat, sharp objects and chemicals. Workers wear safety glasses, goggles or face shields in order to protect their eyes. In some plants workers must wear special boots to protect their feet or to keep from falling on wet, slippery floors. In wet areas, workers might wear aprons or full wet suits to protect themselves and their clothing. Hairnets and beard nets are used for two reasons in food processing plants. These nets not only keep hair from getting caught in machinery, but also from falling into food products.

Wear the right clothing for the job. This may mean that long sleeves, that cover the shoulders, are part of the right clothing. It means being aware of the environment you are working in and dressing so that you protect yourself from everything, from temperature extremes to moving machinery hazards. Protect your feet with the right footwear. Protect your hearing with earplugs. Protect your eyes with goggles or other eye protection. Your head will be better protected when you wear your hard hat/bump-cap. Respect barriers, signs, and warning labels. Following these practices will go a long way toward making sure of your safety within the plant.

SPECIFIC REQUIREMENTS

Machines and mechanical tools are usually made of strong and durable materials. But, the human body is very weak and fragile. So, at times you must protect your body, from machines and materials, by specially made personal protective devices.

Personal Protective Equipment (PPE) is the last line of defense against potential hazards encountered on the job. The safe selection of PPE and clothing is based on the type and extent of hazard present in the plant. Employees will be trained on where PPE is required.

1. Personal protective devices such as: goggles, face shields, respirators, safety shoes, hard hats, gloves, etc., will be required where special hazards prevail.
2. Goggles must be worn when grinding, chipping or when exposed to other flying objects that could injure your eyes.
3. When handling hazardous materials such as acids, caustics, etc. In addition to goggles and gloves, aprons and rubber boots may be required.
4. Protective screens should be provided around jobs where objects, chips or harmful rays, such as from arc welding, may injure others.
5. Respirators should be worn when exposed to harmful dusts, fumes and vapors. Check with your supervisor for specific instructions as to the safe type of respirator needed.
6. Ear protection is available and must be worn if you are exposed to high noise levels. High noise areas are posted or identified by your supervisor.
7. Hard hats must be worn where falling objects might strike the head.
8. Substantial and safe footgear must be worn which will accommodate to the job. Discuss this with your supervisor. Safety-toed shoes or boots should be worn where there is a possibility of heavy objects falling. All footwear should be kept in good repair. Sandals, open toe, open heel, canvas shoes, slippers are not safe to wear in the plant, and are not allowed.
9. You should wear safe and sensible clothing suitable for your particular job. Work garments should be reasonably snug with no loose flaps or strings. Long, loose coats and torn or ragged clothing are not to be worn near moving machinery.
10. Rings, watches, chains, bracelets and other similar jewelry are not to be worn on the job.
11. Some areas require protective clothing and equipment to be worn by visitors. Report all violations to your supervisor.

CLOTHING

Upon employment in a food processing facility, you will be issued the personal protective equipment (PPE) you require to do your job. Additionally, when doing certain tasks, you may be required to wear other PPE. The following is a list of PPE that you may be required to use.

BUMP CAP	Used to protect from overhead hazards
HARD HAT	Used for head protection, usually with ability to withstand more stress than bump-cap.
EAR PLUGS	Many different types, all inserted in the ear canal to protect hearing in noisy environments.
EAR MUFFS	Generally worn over the ears, in some environments more preferable for hearing protection.
GLOVES	Numerous types all used to protect hands in different work situations. Check with supervisor for safe type for the job being done.
GOGGLES	Eye protection, generally snug fitting over the eyes. May have prescription lenses as needed, and authorized.
SAFETY GLASSES	Generally fit over the eyes, may fit over prescription glasses. Used in most instances where some eye protection is required.
FACE SHIELDS	Fully covers the face and protects against splashing, chips, flying objects. Required in grinding and other operations.
RAIN GEAR	Rubberized suit to repel moisture when working in very wet environments. Generally used for wet sanitation tasks, and in other areas, where there is a lot of moisture.
COVERALLS	There are a number of different types. These are used where leg protection is required or for thermal protection in cold areas.
WELDING LEATHERS	Protective clothing for welding, cutting and other hot operations.
RUBBER BOOTS	For use in wet environments, especially where wet sanitation is done.
HIP WADERS	For use in wet environments where there may be significant amounts of objects, water, mud, etc.
HARNESSES	Required for tasks that are over certain heights in the air, to tie-off with. Used in preventing falls.
RESPIRATORS	For protection of airborne contaminants, such as dust, fumes, gases, etc.

APRONS

Worn over garments where there may be moderate moisture, product handling, or other needs.

**HAIR & BEARD
NETS**

Required in all food processing plants over all hair and beards.

HAZARD RECOGNITION

SAFE PRACTICES AND CONDUCT FOR WORK AREAS

In order for a person to get along with fellow employees, certain practices of conduct must be followed. These practices are provided for everyone's protection, especially yours.

1. No employee is expected to take any unneeded chances or in any way endanger the safety of others in the performance of his job duties. When you're not sure ask you're supervisor to explain.
2. If a fellow worker appears to be working unsafely, bring it to the person's attention in a constructive way. This may prevent an accident. The person may not be aware that the method is not safe and will probably appreciate your friendly advice. However, if the unsafe practice continues, report the situation to your supervisor.
3. If you get hurt on the job, report it to your supervisor immediately. This is important to you and to your company.
 - a) Your injury will receive prompt medical treatment.
 - b) The accident will be put on record in case something more serious develops at a later time.
 - c) It will give your supervisor a way to investigate the accident to prevent recurrence.
1. Horseplay has frequently resulted in serious injuries and death. Such acts are not allowed on the job.
2. Reporting to work while under the influence of alcohol or hallucinatory drugs will be subject to disciplinary action.
3. Smoking is not allowed in the plant, except in permitted areas which are clearly marked.
4. Riding in, or on, any part of machines, vehicles lift trucks or other equipment is not allowed unless it is part of your job assignment.
5. Lock-Out or Hazard tags attached to machinery or starting switches mean that someone is working on the equipment. Never remove these tags or start the equipment. To do so may result in a serious accident and may mean disciplinary action.

Since most of your working day will be spent in one specific place, it is important that you become familiar with the safe practices provided for your safety.

1. Except in extreme emergencies, running in the plant is not allowed.
2. Place trash in the waste containers provided for this purpose. Always keep your place as neat and orderly as possible.
3. Safe footing, for prevailing conditions, is very important to your well being. Clean up waste material and spills as soon as possible to remove the exposure to slips and/or falls.
4. Know the location of the nearest emergency exit to your place. It is important also that you know the location of the nearest fire extinguisher, stretcher, fire call box and first-help station. Check with your supervisor and become thoroughly familiar with these emergency items.
5. Aisles must be kept clear. Do not dart into them and always check for moving lift trucks before entering an aisle.
6. Short cuts through other places, visiting with authority, or using equipment and machines that are not assigned to you are unsafe practices to be avoided.

Safe Practices in the Office:

An office has long been considered one of the safest places in which to work. However, many painful injuries can result from not following safe practices.

1. File drawers, desk drawers and slides left partly open tear clothes and cause painful bruises. Close all such drawers and slides as soon as you are through using them.
2. Always use the handles when closing desk or file drawers.
3. Open only one file drawer at a time. If more than one heavily packed drawer is open the file stack may tip over on you.
4. Office machines, such as addressographs, electric fans, etc., must not be adjusted while they are in motion.
5. Loose telephone cords or wires to dictaphones form a tripping hazard. Paper clips, rubber bands, pencils, etc., can cause a bad fall. Keep them off the floor.

6. Use a safe ladder when needed for you to climb. The use of chairs, high stools, or boxes is a hazardous practice.
7. Good posture prevents fatigue, aches and pains. Sit erect, but not tense in your chair.

Clothing:

The type of clothing you should wear will depend, mostly, on the kind of work being done.

1. Unconfined long hair, moustaches, and beards are hazardous in an industrial plant. Wear a hat, cap, or net to control or confine your hair.
2. When working on or near moving machinery, wear slacks with tucked-in blouse or coveralls. Cuffs, loose pockets, flowing ties and long or loose sleeves should be avoided.
3. Avoid wearing oil-soaked clothing or carrying oily waste in pockets. It may catch on fire.
4. Safe work shoes are very important. Shoes not made for work increase the chances of an accident and induce fatigue. Wearing open-toed shoes is a contributing cause of cuts and stubbed toes. High heels and platform shoes cause serious falls and are not to be worn in the plant.
5. For industrial wear, shoes with metal inserts in the toes are recommended. These shoes are sturdy, comfortable, good looking, and will protect your toes against falling objects.
6. Jewelry such as rings, neck chains, bracelets, wrist watches and earrings should not be worn in the plant, especially when working around moving machinery.

SAFE PRACTICES FOR MACHINES AND EQUIPMENT

Machinery has been provided and installed as a useful servant. However, when one fails to understand it and respect it, it quickly becomes a hazardous tool of destruction.

1. Do not attempt to start any machine until you have been trained to operate it safely and have permission to do so.
2. Know where and how to stop it.

3. Make certain that all personnel, loose tools and equipment are clear of the machine before you start it. Walk around it if needed and/or provide the safe warning signal.
4. Ask your supervisor to explain the safe operation of any machine with which you are not thoroughly familiar.
5. Machine repairs or adjustment are not to be made without first shutting the machine off and installing a Lock-Out or Hazard tag on the starting switch.
6. Machine guards have been installed for your safety. Keep them in place and in safe adjustment when the machine is using. Always replace any guards that have been removed for repair or cleaning before using the machine. Missing, or unsatisfactory, guards should be reported to your supervisor at once.

Safe Practices for Equipment:

Equipment is provided and installed to facilitate the moving of product or material in any direction or location desired. If it is not safely used for this purpose, it can be extremely hazardous and cause personal injuries and/or damage to products and other equipment.

Conveyors:

1. Never step through or on a moving conveyor. Stairs have been provided for safe movement over these units.
2. Do not ride or walk on moving conveyors.
3. Stay within the limits of your workstation unless told otherwise.
4. Screw conveyor covers must be kept securely fastened in place while the conveyor is in operation.
5. Cable conveyors must be kept from jamming. In case a jam develops, use the tools provided to break the jam. Climbing on machinery and equipment for this purpose is very hazardous and is not allowed.
6. Tubes, spout, leg or pipe conveyors should be watched for leaks. Report any leaks to your supervisor. Do not attempt to repair leaks yourself.
7. Be on the watch for sharp edges, splinters, frayed belts and broken or worn parts. Report such conditions immediately to your supervisor.

8. Never attempt to oil, grease or clean parts while a conveyor is in use.
9. Changes or repairs should be made only by authorized personnel and only when the power is locked off.
10. Conveyors should not be loaded or put in motion until a check is made to be certain that all is clear.
11. If a conveyor is jammed, no attempt should be made to clear it until the driving motor has been stopped and the control switch tagged and locked.
12. Keep floor areas around conveyors clear. Wipe up powdered materials, spilled liquids, oil, grease, etc., promptly.
13. Specific areas are used for obtaining samples of products. Use these areas only.

Ladders:

1. Ladders are primarily a means of ascending or descending from one level to another. They are not to be used as working bases except in an emergency or for a very short period of time.
2. The following precautions should be watched in placing ladders:
 - a) Place a single, extension or sectional ladder so that the horizontal distance from the base of the vertical plane of support is approximately one fourth the ladder length between supports.

Example: Place a 12 foot ladder so that the bottom is 3 feet away from the object against which the top is leaning.
 - b) Never place a ladder in front of a door which opens towards the ladder unless the door is locked, blocked, or otherwise guarded.
 - c) Do not place a ladder against a windowpane or sash unless you fasten a board across the top of the ladder to provide a bearing on each side of the window.
 - d) Place portable ladders so that both side rails have secure footing. Be sure the ladder feet are not placed on movable objects.

- e) Never lean a ladder on a roof, secure it by lash or fasten the ladder to prevent it from slipping.
 - f) When using a ladder on a roof, secure it by lash or fasten the ladder to prevent it from slipping.
- 3.** In ascending or descending ladders, the following safe practices should be followed:
- a) Hold on with both hands when going up or down. If material must be handled, a rope should be used.
 - b) Always face the ladder in ascending as in descending.
 - c) Never slide down a ladder.
 - d) Make sure your shoes are not greasy, muddy or otherwise slippery before climbing a ladder.
 - e) Never climb higher than the third rung from the top on straight or extension ladders, or the second tread from the top of stepladders.
 - f) In carrying a ladder, keep the front end high enough to clear a person's head and the back end near the floor.
 - g) Special care must be taken when carrying a ladder through doorways, passageways and around blind corners.
- 4.** General Safe Practices:
- a) Do not use makeshift ladders such as one made of cleats fastened across a single rail.
 - b) Be sure that a stepladder is fully opened before using it.
 - c) Never use a broken ladder. Tag or mark a broken ladder so that it may be repaired or replaced.
 - d) Do not splice short ladders together. They are made for use in their original lengths and are not strong enough for use in greater lengths.
 - e) Keep ladders clean and free from dirt and paint, which may conceal defects.

- f) Ladders should not be used during strong winds unless they are securely lashed in position.
- g) Do not use portable stepladders as a single ladder or a portable extension ladder as a fixed ladder.

Safe Practices for Hand Tools:

Hand tools are made available to help you do your job better. They must, however, be kept in good condition and used safely, otherwise, they will cause personal injury and/or damage.

Your supervisor will instruct you on safe use of the hand tools you need for your job. Follow his instructions.

1. Chisels, hammer, etc. are to be kept safely dressed. Avoid using mushroom head tools and keep points clean and sharp. Hammer and axe handles should be inspected frequently and are to be renewed when split or loose at the head.
2. Wrenches, pliers, etc. should be repaired and replaced when grip surface becomes worn.
3. Hand knives should be kept sharp and not carried in the pocket.
4. Special tools may be needed for some jobs. Be sure you are using the right one. Don't improvise. Ask your supervisor for the correct tools and instructions, if needed on how to use them safely.
5. All cords and plugs on portable electrical equipment should be in good condition. Defective tools should not be used and reported promptly for repair or replacement. Do not attempt repairs yourself.
6. All electrical equipment should be grounded and ground attachments are not to be removed.
7. When tools are not in use, keep them in suitable boxes, racks, or trays. Put them down carefully and in orderly way on workbenches, or boards, with cutting edges turned away from you.
8. When carrying tools, protect the cutting edges and carry the tools in such a way that you will not endanger yourself and others.
9. Throw away tools that are damaged beyond repair.

10. Non-sparking tools should be used in the presence of flammable material or explosive dusts and vapors.
11. Select the right tool for the job; use it the right way; make sure it is in good condition; put it away safely.

Electrical:

You are living in an age where electricity plays an important part in your daily life. You depend on it. So, keep it in service and handle it with respect. The company's plant is the same. It must produce a satisfactory and reliable supply of power to operate the equipment you must use. Your life and job depends on it.

1. Loose wires, broken electrical circuits, etc. must be regarded as "hot" (energized). Report them to your supervisor at once.
2. Keep cables and cords protected from oil or chemicals, hot or sharp objects, off of stairs and out of aisles.
3. Unless specifically part of your job assignment, never open panel boxes or change fuses, make connections, etc. Report electrical problems to your supervisor or area electrician; depending on the procedure provided for handling this type of situation.
4. Never energize a switch that has a Hazard or Lock-Out tag attached, nor remove such tags unless specifically authorized to do so.

SAFE PRACTICES FOR STORAGE OF MATERIALS

1. The first consideration in storage of materials is the space or area in which they are to be placed. You may not always have a choice of area. But if you feel that the area is not safe, advise your supervisor.
2. Tonnage and volume should be considered. If the storage area is inside a building, the matter of safe floor loads is very important.

3. Walls are marked to show the maximum loads that floors in the vicinity will support safely. If the weight of the load is known, the safe floor limits should be continued. If not, inform your supervisor of the situation and follow the supervisor's advice.
4. Materials should never be piled to a height that will interfere with safe sprinkler operation. There should be at least two feet clearance between the top of stored material and sprinkler piping.
5. Select firm and unyielding ground for heavy material outdoors.
6. Safe aisles are needed to the safe storage and removal of materials. Keep these points in mind:
 - a) Aisle space should be kept to a minimum as it limits storage space. However, aisles should be satisfactory for the safe handling of the type of materials to be stored.
 - b) Aisles, as far as practical, should be straight and lead directly to exits.
 - c) Aisles should be located in the areas of the building that have the lowest ceiling heights.
 - d) There should be as few aisle intersections as possible. They should be located where there is maximum lighting and visibility.
 - e) Aisle widths will vary according to usage but the following is recommended for two-way traffic with the normal size of fork trucks:

2000 Pound Truck – 10'

4000 Pound Truck – 12'

6000 Pound Truck – 14'

SAFE PRACTICES FOR PORTABLE FIRE EXTINGUISHERS

You may have to use a fire extinguisher in an emergency. But an extinguisher is useless in the hands of a person who doesn't know how to make it work. It is important to know how to put the extinguisher into operation and the safe type of use.

TYPES:

- | | |
|----------------|---|
| Class A | These are for fires involving ordinary combustible materials such as trash, paper, cloth, wood, etc. A type "A" extinguisher is used on such fires to lower the temperature through the use of water. |
| Class B | These are for fires involving flammable liquids, such as gasoline, oil, tar, paint, etc. |
| Class C | These are for fires involving electrical equipment. |

1. Extinguisher filled with water solutions – Class A – and located outdoors should be charged with an anti-freeze solution during the winter months.
2. Carry the extinguisher to the fire and operate it according to the printed instructions on the container.
3. Use the extinguisher as close to the fire as possible, directing the stream at the base of the flames – Class A.
4. For liquid fires in open containers, the steam should be directed against the inside wall of an open container just above the burning surface – Class B.
5. Use dry chemical, a non-conducting agent, for electrical fires – Class C – Use it also for Class B fires either in open containers or on floors, where the cloud of dry power may smother the flames.
6. Never use water solution extinguisher (Class A) on electrical fires. The steam is a good conductor of electricity and may cause damage to the equipment and/or injure you.
7. Never use water solution extinguisher (Class A) on burning liquid fires, particularly in vats of other open containers. They have practically no smothering effect and their stream may splash the burning liquid and spread the fire.

8. Carbon Dioxide (CO₂) extinguishers are to be used only on burning liquid or electrical fires – Class B and C.
9. The local Fire Department should be notified as soon as a fire is discovered regardless of the results of a fire extinguisher.

SLIPS, TRIPS, AND FALLS

Slips, trips, and falls are a major source of job-related injury in today's work place. Slips and trips cause approximately 100,000 injuries annually. Falls cause 10 percent of workplace deaths each year along with 350,000 injuries. These types of accidents are costly to both the employer and employee. Injuries include cuts, bruises, muscle sprains and strains, back injuries, and broken bones.

Slips:

Slips are a loss of balance caused by too little friction between our feet and the surface that you walk or work on. This loss of traction is the leading cause of workplace slips. Slips can be caused by constantly wet surfaces, spills or weather hazards like ice and snow. Slips are more likely to occur when you hurry or run, wear the wrong kind of shoes or don't pay attention to where you are walking. Follow these safety precautions to avoid a slip:

1. **Practice safe walking skills.** If you must walk on wet surfaces, take short steps to keep your center of balance under you and point your feet slightly outward. Move slowly and pay attention to the surface you're walking on.
2. **Clean up spills right away.** Whenever you see any kind of spill, clean it up yourself or report it to the appropriate person. Even minor spills can be very hazardous.
3. **Clean up grease.** Do not let grease gather on a shop floor around machinery. If grease is present in your area, be sure that it is cleaned up immediately.
4. **Be more cautious on smooth surfaces.** Move slowly on floors that have been waxed, but not buffed, and other very slippery surfaces.
5. **Ice and snow present especially hazardous walk surfaces.** When possible, remove ice and snow from sidewalks and parking lots before heavy traffic use and recommend safe footwear for the conditions.

Footwear:

Wearing safe footwear can help reduce slips. Shoes with neoprene soles can be used safely on most wet or dry work surfaces. However, they are not recommended for oil conditions. Crepe soles are best for rough concrete, whether wet or dry, but are not suggested for tile, smooth concrete or wood surfaces. Other devices are available to increase traction on your shoes. Strap-on cleats can be fastened to soles for greater traction on ice. There are non-skid sandals and boots that slip over shoes and offer better traction on ice, oil, chemicals, and grease.

Trips:

Trips occur whenever your foot hits an object and you are moving with enough momentum to be thrown off balance. A trip can happen when your place is cluttered, when lighting is poor, or when an area has loose footing. Trips are more likely to happen when you are in a hurry and do not pay attention to where you are going. Make sure you can see where you are going. Carry only loads that you can see over.

Normal practices to follow to avoid tripping can include:

1. Keep places well lit. Turned-off lights and burned-out bulbs can interfere with your ability to see clearly. Do not grope in the dark; use a flashlight or extension light to make your walking area visible in unlighted areas.
2. Keep your place clean and do not clutter aisles or stairs. Store materials and tools in closets, cabinets, or specially assigned storage areas.
3. Arrange furniture so that it does not interfere with walkways or pedestrian traffic in your area.
4. Extension or power tool cords can be hazardous tripping hazards. Tape them to the floor or arrange them so that they will not be in the way for pedestrians.
5. Remove hazards due to loose footing on stairs, steps, and floors. Report loose carpeting, stair treads, or handrails. Broken pavement and floorboards or loose floor tiles can also catch a foot and cause a fall.

Falls:

Falls occur whenever you move too far off your center of balance. Slips and trips often push you off your center of balance far enough to cause a fall, but there are many other ways to fall. They are also caused by makeshift ladders, misuse of ladders, accidents while climbing, and unsafe scaffolding use. Most falls are slips or trips at ground level but falls from greater heights pose a

much higher risk of serious injury. Avoid falls of any kind with these safety steps:

1. Do not jump. Lower yourself carefully from docks, trucks, or work stages.
2. Check lighting. Make sure hallways, stairs, and places are safely lit.
3. Repair or replace stairs or handrails that are loose or broken. Report these types of hazards to the safe personnel in your company.
4. Do not store items on stairs or in aisles.
5. Wear good shoes. Non-skid soles are a good choice. Remember that high heels or platforms are less stable than flat shoes.
6. Always use safe equipment when you have to work at a higher level. Never use chairs or any other unstable equipment to reach higher.

Preventing slips, trips, and falls is a task that depends on many factors, most importantly, you. You may not be able to change your workplace, but you can recognize hazards, work to remove them, and use safety devices and equipment.

Why do Workers Need to Wear Clean Clothing?

People working in the fields may not have to wear clean clothing all the time. However, people working with food items must wear clean clothing each day. Clean clothing helps keep the product clean and sanitary. Clothing may look clean, but if it is dirty or has not been washed for a long time then it is probably full of bacteria or germs that could affect the product.

HAZARDOUS COMMUNICATION – MSDS

INTRODUCTION

Please watch the video: **HAZ-COM Employee Training**

Food processors use many chemicals in their manufacturing processes that are considered hazardous. It is important that employees know the health hazards associated with these chemicals, and how to take protective steps. OSHA has a standard that requires employers to communicate the hazards of these chemicals to employees by using chemical labels and Material Safety Data Sheets (MSDS).

A MSDS is a written evaluation of a hazardous chemical that is generally prepared by the substance manufacturer, importer, or distributor, and provided to the employer with the first distribution of the substance. Employers must have an MSDS for each hazardous chemical they use. Employers may rely on these MSDS's (they usually do) or may do their own evaluations. Employers relying on MSDS's supplied by a manufacturer or distributor will not be liable for their accuracy as long as they have accepted the MSDS in "good faith," that is, without blank spaces or obvious inaccuracies. But if they do their own evaluation, they will be held responsible for its accuracy.

Education and Training

Training must be provided at the time of the first assignment and whenever a new hazard is introduced into the place. OSHA's requirements for employee information and training are flexible, allowing a company to design a program tailored to its needs and operations. At a minimum, the training must cover the following:

1. Details of the Hazard Communication Standards (HCS) and its requirements, including an explanation of the labeling system and MSDS.
2. The location of workplace areas where hazardous chemicals are present and where the workplace chemical list, MSDS's, and the written communications program are kept
3. How the hazard communication program is implemented, how to read and understand labels and MSDS's, and how employees can obtain and use available hazard information

4. How workers can find the presence of hazardous chemicals (e.g., visual appearance, smell); their physical and health hazards; and protective steps employees can take, including specific protective procedures the employer is providing such as engineering controls, work practices, and personal protective equipment

Information and training must be specific to the kinds of hazards present in the workplace and the particular protective equipment, steps, and procedures that are needed. Chemicals that are combustible, compressed gases, oxidizers, or are unstable are considered hazardous. Included in chemicals that are health hazards are those that are carcinogens, toxins, irritants, and corrosives.

Trade secrets:

Under certain circumstances, the HCS allows an employer to withhold information of a chemical identity on the grounds that it is a trade secret. To receive a trade secret designation, the employer must be able to support the assertion that the data is a trade secret, release all other information on its safeties and effects on all required documents, and indicate on the MSDS that the information is being withheld as a trade secret.

Employees will be trained to work safely with hazardous chemicals. Employee training should include:

1. Methods that may be used to find a release of a hazardous chemical(s) in the workplace
2. Physical and health hazards associated with chemicals
3. Protective steps to be taken
4. Safe work practices, emergency responses, and use of personnel protective equipment
5. Information on the Hazard Communication Standard including:
 - a) Labeling and warning systems
 - b) An explanation of Material Safety Data Sheets.

Employees working with a hazardous chemical may request a copy of the MSDS. Requests for MSDS's should be provided to your immediate supervisor. An MSDS will tell you the physical and health hazards associated with each chemical used. They will also identify what protective steps must be taken to prevent exposure.

MSDS's shall be available and standard chemical reference will also be available on the site to provide immediate reference to chemical safety information.

LABELING

The purpose of labeling is to provide with employees an immediate warning of hazardous chemicals and remind them that more detailed information is available. Every hazardous chemical container must be labeled. Employers may not remove or deface existing labels on incoming containers unless they immediately mark the container with the required information.

Labels are meant to be easily readable, so they should not contain too much information or be in small print. An MSDS may not be used as an alternative to a warning label, but the employer may use signs, process sheets, batch tickets, using procedures, or other written materials as long as the alternative method identifies the applicable containers and conveys the following information:

1. The identity of hazardous chemicals.
2. Appropriate hazard warnings in words, pictures, symbols, or a combination, giving at least general information about the particular chemical's hazards, and that, in conjunction with other information available through HCS, will provide employees with the needed specific information.
3. The name and address of the chemical manufacturer, importer, distributor, or other responsible party.

Employers must make sure that:

1. A person is used to be responsible for making sure all in-plant containers are safely labeled.
2. Someone is in place to make sure all shipping containers are safely labeled.
3. There is an alternative, in-plant, container-labeling system in place.
4. A program is in place that keeps all label information up-to-date, all employees are

label-trained, and all labels are safely updated.

- Other containers: Secondary containers, in which a substance has been transferred from its original manufacturer's bulk bottle to a smaller container owned by the user, must be labeled in the same way. Portable containers, into which hazardous chemicals are transferred for immediate use, are not required to be labeled, nor do pipes or piping systems require labeling. However, employees must be informed if pipes contain hazardous substances.
- New information: OSHA has issued an indefinite stay of enforcement on the requirement that manufacturers update label information within 90 days of receiving information on a significant hazard.

In a medical emergency, the employer must disclose the information outright to the health skills involved. The health skills must sign a confidentiality agreement as soon as circumstances permit. In a non-emergency situation, the employer may have to disclose the specific chemical identity to a doctor, industrial hygienist, toxicologist, epidemiologist, or occupational health nurse, or to the employee's used representative. Disclosure is required in response to a written request that describes in detail the health need for the information. The request must include a description of the confidentiality procedures the requester will use. An employer may deny the revealing of trade secret information, in writing, within 30 days of such a request. The denial must explain how alternative information may satisfy the requestor's need. The denial may be referred to OSHA, which will make the final decision.

All chemicals on site will be stored in their original, or approved, containers with a safe label attached, except small quantities for immediate use. Any container, not safely labeled, shall be given to your immediate supervisor for labeling or safe disposal.

Workers may dispense chemicals from original containers only in small quantities provided for immediate use. Any chemical left after work is completed must be returned to the original container or your immediate supervisor for safe handling.

No unmarked containers of any size are to be left in the plant unattended.

Your company may rely on manufacturer applied labels whenever possible, and will make sure that these labels are continued. Containers that are not labeled, or on which the manufacturer's label has been removed, will be re-labeled.

Your company will make sure that each container is labeled with the identity of the hazardous chemical contained and any appropriate hazard warnings.

MATERIAL SAFETY DATA SHEETS – MSDS

The Hazard Communications Standard is a "performance" standard. It requires that certain objectives be met, but it is flexible about the specific methods and forms used to achieve compliance. Thus, while OSHA specifies the content of MSDS's, it is not particular about the format as long as all the information is included clearly and carefully. Also, while OSHA offers a form for the preparation of an MSDS (OSHA Form 174), its use is not mandatory. Regardless of the form used, the MSDS must contain the following information:

1. The identity of the substance, as used on the label
2. The substance's composition, including its chemical and common names and the chemical and common names of its hazardous ingredients
3. Physical and chemical characteristics of the hazardous chemical (i.e., vapor pressure, flash point); physical hazards of the hazardous chemical, including potential for fire, explosion, and reactivity; and the health hazards of the hazardous chemical, including signs and symptoms of exposure, and any medical conditions that are generally recognized as being aggravated by chemical exposure
4. Primary routes of entry into the body
5. OSHA-permissible exposure limit, and any other exposure limit used, or recommended, by the chemical manufacturer, importer, or employer preparing the MSDS
6. Whether the hazardous chemical is listed in the National Toxicology Program *Annual Report on Carcinogens* (latest edition), or has been found to be a potential carcinogen by the International Agency for Research on Cancer or by OSHA
7. Precautions for safe handling and use (e.g., appropriate hygiene practices, protective steps during repair, maintenance of contaminated equipment, and procedures for cleanup of spills and leaks) and any generally applicable control steps known, such as appropriate engineering controls, work practices, or personal protective equipment
8. Emergency and first-help procedures
9. Date of MSDS preparation or most recent change

- 10.** The name, address, and telephone number of the party preparing or distributing the MSDS who can provide extra information on the hazardous chemical and appropriate emergency procedures, if needed

If the chemical ingredients in complex mixtures are essentially the same but the specific composition varies from mixture to mixture, only one MSDS may be required.

Every space requiring information must be filled in. If there is no relevant information for any given category on the MSDS, this must be indicated in the space.

Any new, significant information about the hazards of the chemical must be added to the MSDS within three months. If the chemical is not currently being produced or imported, the chemical manufacturer or importer should add any new information to the MSDS before the chemical is reintroduced.

The most recent MSDS for each hazardous substance must be kept on file in the workplace and be readily accessible to employees. If employees travel between work sites during their regular shifts, it may not be needed to provide separate collections at every site; however, employees must be able to gain access to the MSDS's in an emergency. Employers are allowed to use electronic means to provide MSDS's—including computers, microfiche machines, the Internet, CD-ROM and fax machines—instead of printed documents. The files must be accessible at all times and employees must be taught their use, including specific software. There must be a satisfactory backup system in the event of system failures such as power outages or on-line access delays. In the event of medical emergencies, employers must be able to immediately provide copies of MSDS's to medical personnel.

Employees working with a hazardous chemical may request a copy of the MSDS. Requests for MSDS's should be provided to your immediate supervisor. An MSDS will tell you the physical and health hazards associated with each chemical used. They will also identify what protective steps must be taken to prevent exposure.

MSDS's shall be available, and standard chemical reference will also be available, on the site to provide immediate reference to chemical safety information.

EMERGENCY RESPONSE

Any accident of over exposure, or spill, of a hazardous chemical/substance must be reported to your immediate supervisor at once.

The foreman or the immediate supervisor will be responsible for insuring that safe emergency response actions are taken in leak/spill situations prior to the start of such tasks.

Where needed, areas will be posted to indicate the nature of the hazard involved.

Your company seeks to make sure of the safety of its employees, while complying with all safety regulations. As part of its safety program, each company will have an emergency evacuation plan. It will be important for you to learn this plan, and to be familiar with the procedures needed to safely exit, in case of an emergency.

Employee Notification and Access

Employers must notify employees of their rights under this HCS by posting a notice, holding group meetings, or notifying employees individually. Current and former employees (or their used representatives, including union officials), who have been exposed to harmful agents, must be provided access to records that identify the agents, and must be provided access to their medical records within 15 days of a request. Exposure records must be kept for 30 years.

CONFINED SPACE

IDENTIFYING CONFINED SPACES

Please watch the following video: **Confined Space Entry Responsibilities**

The danger of hazards that may, or may not be, easily seen, smelled, heard, or felt can represent deadly risks to the people who work in confined areas. A confined space is defined as any space large enough that an employee can enter and do work, but, that has limited means for entry or exit and is not made for continuous human occupancy. A confined space is one in which hazardous air contamination cannot be prevented or removed by natural ventilation. There is always a chance a reduced oxygen level, combustible, or toxic gases may be present, thus, posing deadly risks to the people who work in the confined area, and conditions of confined spaces.

Prevention of injuries, to the life and health of employees, requires that they be safely trained and equipped to recognize, understand, and control their exposure to job-related hazards. Before entry is made into a confined area, it must be assumed that a hazard is present and is "immediately hazardous to life and health" Measurements must be taken to prove otherwise.

Safe entry, into a confined space, is the joint responsibility of the supervisor, the attendant, and the employee who enters the space. Each entry into a confined space must be judged by the supervisor of the employee entering the space to determine the hazards involved and the appropriate safety steps, procedures, and controls. Supervisors must make sure that confined space entry procedures are followed and that personnel understand, and comply, with all safety requirements. Employees must inform their supervisor of any departure from required procedures.

The first step toward conducting a safe confined-space entry is to identify the space as potentially hazardous. All confined spaces shall be considered "permit-required" until pre-entry procedures show otherwise. To clarify what constitutes a confined space, the following definition will be used.

A confined space is any space that has the following characteristics:

1. Large enough, or so configured, that an employee can enter and do assigned work.

2. Has limited, or restricted, means for entry or exit. Confined space openings are limited primarily by size and location. Openings may be small in size and may be difficult to move through easily. However, in some cases, openings may be very large; for example, open-topped spaces such as pits or excavations. Entrances and exits may be required from top, bottom, or side. Size or location may make rescue efforts difficult.
3. Is not made for continuous employee occupancy.
4. Most confined spaces are not made for employees to enter and work on a routine basis. They may be made to store a product, enclose materials and process, or transport products or substances. So, occasional employee entry for inspection, maintenance, repair, cleanup, or similar tasks, is often difficult and hazardous. The hazard, associated with entry may, come from chemical or physical hazards within the space.

Non-Permit Confined Space means a confined space that does not contain, nor has the potential to contain, any hazard capable of causing death or serious physical harm (with respect to atmospheric hazards). Examples of non-permit confined spaces are open vaults, ventilated vaults, motor control cabinets.

Permit-Required Confined Space (permit space) means a confined space that has one or more of the following characteristics:

- Contains, or has a potential to contain, a hazardous atmosphere.
- Contains a material that has the potential for engulfing an entrant.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly-converging walls or by a floor that slopes downward and tapers to a smaller cross-section; or
- Contains any other recognized serious safety or health hazard.

Based on the definition, many types of spaces may be considered "confined," and so, hazardous. Some examples of confined spaces might be sewers, electrical vaults, steam tunnels, mechanical rooms, existing tanks, tank car, tower, manhole, sump, vats, process containers, pits, or other similar types of enclosures.

The permit system is part of a written program that requires written permission from authorized supervision, to enter and work in a confined space. Specific training must be provided to employees so they know what a permit and non-permit confined space is. Employees must be taught the risks, hazards, and procedures for working safely in the space. No work can be done until planning has been done.

IDENTIFYING CONFINED SPACE HAZARDS

Once a space has been identified as confined, the hazards that may be present within the confined space must be identified. Confined-space hazards can be grouped into the following categories:

- 1.** Oxygen-deficient atmospheres
- 2.** flammable atmospheres
- 3.** toxic atmospheres
- 4.** mechanical and physical hazards.

Every confined space must be judged for these four types of hazards. The three types of atmospheric hazards are often the most difficult to identify since they are normally invisible.

Oxygen-Deficient Atmospheres

The normal atmosphere is composed of approximately 21% oxygen and 79% nitrogen. An atmosphere containing less than 19.5% oxygen shall be considered oxygen-deficient. The oxygen level inside a confined space may be decreased as the result of either consumption or displacement.

There are a number of processes, which consume oxygen in a confined space. Oxygen is consumed during combustion of flammable materials, as in welding, cutting, or brazing. A more subtle consumption of oxygen occurs during bacterial action, as in the fermentation process. Oxygen can also be consumed during chemical reactions, such as in the formation of rust, on the exposed surfaces of a confined space. The number of people working in a confined space and the amount of physical activity can also influence oxygen consumption. Oxygen levels can also be reduced as the result of oxygen displacement by other gases.

Flammable Atmospheres

Flammable atmospheres are the result of flammable gases, vapors, dust mixed in certain concentrations with air, or an oxygen-enriched atmosphere.

Oxygen-enriched atmospheres are those atmospheres which contain an oxygen concentration greater than 22%. An oxygen-enriched atmosphere will cause flammable materials, such as clothing and hair, to burn violently when ignited.

Combustible gases or vapors can gather within a confined space when there is unsatisfactory ventilation. Gases that are heavier than air will gather in the lower levels of a confined space. So, it is especially important that atmospheric tests be conducted near the bottom of all confined spaces.

The work being conducted in a confined space can generate a flammable atmosphere. Work such as spray painting, coating or the use of flammable solvents for cleaning can result in the formation of an explosive atmosphere. Welding or cutting with oxyacetylene equipment can also be the cause of an explosion in a confined space and shall not be allowed without a hot work permit. Oxygen and acetylene hoses may have small leaks in them, which could generate an explosive atmosphere and, so, should be removed when not in use. The atmosphere shall be tested continuously while any hot work is being conducted within the confined space.

Toxic Atmospheres

Toxic atmospheres may be present within a confined space as the result of one or more of the following:

The product stored in the confined space

- When a product is stored in a confined space, the product can be absorbed by the walls and give off toxic vapors when removed or when cleaning the residual material. The product can also produce toxic vapors, which will remain in the atmosphere due to poor ventilation.

The work being done in the confined space

- Toxic atmospheres can be generated as the result of work being conducted inside the confined space. Examples of such work include: Welding or brazing with metals capable of producing toxic vapors, painting, scraping, sanding, etc. Many of the solvents used for cleaning and/or degreasing produce highly toxic vapors.

Areas next to the confined space

- Toxic fumes produced by processes near the confined space may enter and gather in the confined space. For example, if the confined space is lower than the adjacent area and the toxic fume is heavier than air, the toxic fume may "settle" into the confined space.

Mechanical and Physical Hazards

Problems, such as rotating or moving mechanical parts or energy sources, can create hazards within a confined space. All rotating or moving equipment such as pumps, process lines, electrical sources, etc., within a confined space, must be identified.

Physical factors such as heat, cold, noise, vibration, and fatigue can contribute to accidents. These factors must be judged for all confined spaces.

Excavations could present the possibility of being engulfed. Employees shall be protected from cave-ins by sloping, benching, or shoring systems when the depth of the excavation is more than four feet.

A trained person must be on standby during confined space operations to help in the event of a potential rescue. This person must be taught emergency rescue procedures.

TRAINING FOR SAFETY AROUND CONFINED SPACES

Training:

Every employee who participates in a confined space entry project must have the understanding, knowledge, and skill needed for the safe performance of duties assigned for the confined space entry, as part of the employee's safety training. Supervisors are responsible to see that each of their employees has been given the appropriate safety training.

Employees will be taught confined space entry, permit procedures, use of personal protective equipment, atmospheric monitoring equipment, and rescue procedures and equipment prior to entry into any confined space. Training includes identification of all confined spaces, and notification to affected employees.

Engineering controls of hazards will be used in confined spaces, with the aim being to remove the potential of a confined space fatality or injury.

Those who work in confined spaces will be taught the following areas before entry is allowed:

- Emergency entry and exit procedures
- Applicable respirators
- First Help and CPR
- Lockout procedures
- Safety equipment use
- Rescue equipment and training drills
- Permit system
- Work practices

All employees will be instructed not to re-enter Permit Required Confined Spaces without safe authorization.

PROCEDURES FOR SAFETY AROUND CONFINED SPACES

1. Monitor the atmosphere

Atmospheric monitoring is the first, and most critical, rule as most fatalities in confined spaces are the result of atmospheric problems. Remember your nose is not a gas finder — some hazards have characteristic odors and others do not. Even when you can find the presence of a hazard, you cannot determine the extent of that hazard. Some materials may even deaden your sense of smell after short exposure, which can deceive you into thinking the problem has gone away, when in fact your ability to smell is all that went away.

The only reliable method, for careful finding of atmospheric problems, is instrument monitoring. Basic confined space atmospheric monitoring should routinely include; oxygen concentration and flammable gases and vapors. OSHA regulations require the oxygen concentration, to be between 19.5 and 23.5 percent and flammable vapors or gases to be below ten percent of the lower explosive limit (LEL).

But regulatory limits provide only minimal protection. Best practices dictate that any variation from normal (20.9 percent oxygen and 0 percent LEL) should be investigated, and corrected, prior to entering the space.

Toxic monitoring requires an evaluation of potential atmospheric contaminants before you even determine how the monitoring will be performed. Simply put, this means you must establish what you need to look for in order to determine what equipment to use. The following digital instruments are available for normal toxic contaminants:

Electrochemical sensors measure carbon monoxide, hydrogen sulfide, sulfur dioxide, ammonia, chlorine, and several other materials.

Infrared sensors measure carbon dioxide and several other materials.

Photo ionization and flame ionization detectors will measure volatile organic compounds (VOCs) at the parts per million (ppm) levels. This may be required if solvent vapors are present. These vapors will exceed the limits for inhalation long before they will be found with most LEL meters.

Colorimetric tubes can be used to determine if a toxic contaminant is present in situations where no digital instrument is available.

A thorough assessment of the atmospheric conditions in the space must be completed before entering the space, and should be continued during the entire entry.

2. Remove or control hazards

All hazards identified during the hazard assessment must be removed, or controlled, prior to entering the space.

Elimination, the preferred method for dealing with hazards, means that a hazard has been handled in a way that it cannot possibly have an impact on the operation. For example, a safely installed blank removes the hazard of material being introduced through a pipe.

Control implies that the steps in place contain a hazard. If these steps were to fail, the hazard could have an impact on the operation. Ventilation (see below) is an example of a control, because if the ventilation setup quits, the atmospheric hazard may return.

3. Ventilate the space

Your approach to atmospheric problems should be to correct the condition prior to entry and ventilation and related activities are the best options for correcting these problems.

Forced-air ventilation is generally the most effective approach for confined space entry operations. This technique dilutes and displaces the atmospheric contaminants in the space. Exhaust ventilation works best when a single-point source, such as welding, is the cause of the atmospheric contaminant.

Introduced air must be fresh. Use caution to avoid introducing hazards such as having the inlet of the ventilation setup too near the exhaust of a vehicle. Satisfactory volume for the size of the space must be used. The length of duct and the number of bends in the duct can significantly reduce airflow and must be considered.

4. Use safe personal protective equipment

Safe personal protective equipment (PPE) should be the last line of defense. Elimination and control of hazards should be done whenever possible. PPE is needed when the hazards present cannot be removed, or controlled, through other means. PPE that meets the specific hazard must be readily available to the work crew. And personnel must be trained and competent in the safe use of the equipment. It is equally important that supervisors insist on safe use.

5. Isolate the space

Isolation of the space should remove the way for introducing extra hazards through external connections. This includes lockout of all powered devices associated with the space, such as electrical, pneumatic, hydraulic, and gaseous agent fire control systems. Piping isolation may be completed with blanks, by disconnecting piping, or with a double block-and-bleed arrangement. A single valve is not a satisfactory isolation.

6. Know the attendant's role

An outside attendant must be present to monitor the safety of the entry operation, to help during an emergency, and to call for help from outside if that becomes needed. The attendant's role is primarily to help make sure that problems do not escalate to the point where rescue is needed. If an entrant does get injured or overcome, the attendant is to call for help and use outside help if available. This attendant must never enter the space during emergencies — multiple fatality accidents in confined spaces usually result from people attempting rescue.

7. Be prepared for rescues

Any equipment required for rescue must be available to those who are used to use it. External retrieval equipment that may be used by the attendant must be in place when appropriate. More advanced rescue equipment for entry-type rescues must be available to the rescue crew.

You must make sure that the rescue crew is safely equipped to handle a rescue for the particular situation. For example, if the rescue crew for your facility has self-contained breathing apparatus (SCBA) and your spaces do not have large enough openings for the SCBA to pass through, the rescue crew will not be able to do it's job effectively. In this case, they should be equipped with airline breathing apparatus with escape cylinders.

8. Use good lighting

Lighting is important for two primary reasons: You cannot safely perform in environments where you cannot see well, and lighting failure can cause fear. Anyone who is comfortable inside a well lit confined space may become afraid if the lighting fails, and fear can cause people to behave irrationally and injure themselves or others. The entrant should always have at least one backup source of lighting, so, if cord lights are used, the entrant should also carry a flashlight.

9. Plan for emergencies

You must assume you will have emergencies. While your efforts to prevent them need to be constant, odds are good that you will have to deal with at least a minor emergency, if you engage in confined space entry over a long enough period. Emergencies may not even have anything to do with the confined space, but if the entrant is in the space at the time of the emergency, prompt and effective action is required. If your entry crew is prepared for this emergency, it may be handled without a problem. If preparations are not satisfactory, the emergency may easily turn into a fatal accident.

10. Emphasize constant communication

Effective communications are critical to safe operation, and are the string that ties all the other activities together. Communication must be continued between entrants and the attendant. The attendant must also be able to contact the entry supervisor and call for emergency help.

BLOODBORNE PATHOGENS

UNIVERSAL PRECAUTIONS

Please watch the following video: **Bloodborne Pathogens for Heavy Industry**

There is a great deal of concern in the workplace due to the rapid spread of Human Immune Deficiency Virus (HIV), Hepatitis B and Hepatitis C viruses. These viruses, known as blood borne pathogens, are disease-causing microorganisms found in human blood as well as human blood components and products. OSHA has created a standard to minimize, or remove, occupational exposure to these microorganisms. This standard is provided to explain how exposure to bloodborne pathogens occurs and how to protect yourself and co-workers from these exposures.

WORK PRACTICES

The best way to prevent exposure while dealing with potentially infected blood is to follow safe work practices and to have safety engineered into the workplace. Hazards should be identified and removed before they can cause an injury. Make sure warning signs and labels are up to date and easily visible.

Good Housekeeping practices will help reduce the risk of exposure to blood borne pathogens. Keep the workplace neat and clean to help prevent accidents.

Wear your PPE where it is required. When doing so, follow manufacturer's guidelines.

Do not eat, drink, smoke, apply cosmetics, or handle contact lenses until you have thoroughly washed your hands.

Bloodborne pathogens must find a direct route of entry into the body for infection to occur. This usually occurs through breaks in the skin, such as cuts, burns, or other breaks such as acne or rash. Bodily fluids can also enter the eyes from a splash. You cannot catch a blood borne disease when an infected person touches you or sneezes and coughs on you. You cannot contract a blood borne disease from a toilet seat or from using someone else's glass or cup. You may be exposed to blood borne pathogens if your skin is penetrated by a needle, broken glass, or other sharp objects, that are contaminated by infected material.

Medical Attention

If a co-worker has a minor accident that causes bleeding, try to have the victim bandage their own wound. This will reduce the possibility of others being exposed. If the injury is serious, call the emergency response team used by your employer. If you feel you don't have time to wait for an emergency response team and the injury could be fatal, make sure you take universal precautions (discussed in the next module). Wear latex gloves, use a barrier device for CPR, and wear goggles, or a face shield, if there is a possibility of bodily fluids splashing into your eyes.

Use anything practical to stop the bleeding, while preventing exposure to the victim's blood. You may use paper towels, or several layers of clothing. Remember that vomit, burns, abrasions, head injuries, and internal injuries can release bodily fluids that are difficult to see.

If you have been exposed to a victim's bodily fluids, wash the affected area thoroughly with soap and water. If you think you may have been splashed in the eyes, bathe the eyes thoroughly using eyewash. Report **every** accident that involves exposure to blood or bodily fluids to your supervisor immediately. The supervisor will make sure that the appropriate people are informed.

Your employer may ask you to be tested by a company doctor or you may request testing to determine if you have been infected.

PERSONAL PROTECTIVE EQUIPMENT

When potential exposure to bloodborne pathogens exists, employees must;

- Wear gloves wherever there is a chance of exposure
- Replace disposable gloves as soon after potential contamination as possible. Never attempt to reuse disposable gloves.
- Use utility gloves, such as rubber, for decontamination. Dispose of them if they are cracked, peeling, or damaged.
- Wear masks and eye protection if there is a chance of splashes. Safety goggles provide complete eye protection.
- Wear protective clothing that is made to prevent pass-through of fluids and other materials.
- Know the location of collection and disposal points for PPE. Take off PPE, in the safe procedure, before leaving the place.

CLEAN-UP PROCEDURES

You will need to know what to do in case of an accident. If you come into contact with any potentially contaminated material, you should wash the affected area with soap and water as quickly as possible. Next, immediately contain the material using absorbent barriers or by soaking up the spilled material. The spill area must then be cleaned with your company's approved disinfecting solution, such as diluted bleach – in a solution that is one part household bleach to nine parts water. Alcohol is another cleaning solution that can be used.

Contaminated clothing and bandages must be disposed of in an approved bio-hazard bag. This material must be sent to a facility that is licensed to dispose of hazardous waste.

LOCKOUT - TAGOUT

OVERVIEW

Please watch the following videos:

- **Lockout/ Tagout: When Everyone Knows**
- **High Impact Lockout/Tagout Safety**

Employees who work in servicing or who provide equipment must understand how to recognize types, and amounts, of hazardous energy sources. Before beginning a task, all energy forms must be de-energized and then locked and tagged. After the job is complete, authorized employees must safely return the equipment to service by removing the lockout devices and re-energizing the equipment or process line.

OSHA released the Hazardous Energy Policy – also known as the Lockout/Tagout Standard – that requires that lockout procedures be implemented to prevent equipment from releasing its stored energy while it is being repaired or continued.

DEFINITIONS

Authorized employees	People actually responsible for physically locking out equipment.
Affected employees	People who either operate equipment that is being locked out, or work in the area where the lockout is taking place.
Lockout/tagout	What occurs when a piece of machinery or equipment has been isolated and disconnected from its energy source with a special lock and tag.
Other employees:	People who may not be directly affected by the lockout but must know how to recognize when a lockout is in progress.

LOCKS (LOCKOUT PROCEDURE)

Lockout/tagout is implemented by isolating and disconnecting a machine or piece of equipment from its energy source and then locking it out with a special lock and tag. Lockout/tagout works for all types of energy including; electric, mechanical, pneumatic, hydraulic, thermal, and gravity. Some pieces of equipment have more than one energy source that must be locked out during maintenance or repair.

All procedures for locking out equipment in your facility must be followed, and must be in the company's written energy control plan.

Locks used in the lockout/tagout procedure, must be provided by the company. They must have the appropriate identification and there must be only one key in circulation. If a lock and key are issued to you, they are your responsibility; they serve as your assurance that a locked out power source stays locked out.

Tags are used in conjunction with locks, and must be sturdy enough to withstand the elements that are present. They must bear warning signs such as "do not operate" and other appropriate information, including your name on the tag. The person who attaches a specific lock and tag must be the person to remove them. It is against policy and procedure to use another person's lock/tag or to place it for them.

When locking out machinery or equipment;

1. First make sure that you are familiar with the machine you are locking out, including the type of energy it uses and the potential hazards.
2. Notify all affected employees that you will be doing a lockout and the reason for it.
3. Shut down the equipment with the normal on/off control.
4. Isolate all energy sources with the energy isolating device. Energy isolating device refers to mechanical devices that physically prevent the release or transmission of energy, not push button switches or selectors.
5. Use the lock, provided by your employer, to lockout the energy source and then attach a tag at the lockout point.
6. You may need to bleed lines, open or close valves, drain pipes, release tension on springs, etc. to control any stored or secondary energy that may be present.
7. Verify the lockout by pushing the start button or activating the normal on/off controls and seeing if the machine will operate.
8. Make sure you don't bypass the lockout. If you need to energize the equipment to make extra changes, make sure you lock it out again.

Tags:

Should have a standard color, shape, and size within your facility.

Must identify the person who attached it along the time and date of attachment.

Must be durable enough to withstand the environmental conditions that are present.

Must be attached securely enough to withstand 50 pounds of pressure.

Group Lockout:

A group lockout takes place when there is more than one person working on the equipment or system that is activated by an energy-isolating device. In a group lockout, one person will have primary responsibility for the lockout, but each person must attach a lock to the energy-isolating device.

Each person must remove his or her own lock. Never re-enter a hazardous area or attempt changes on equipment without attaching your lock.

Employees who are leaving a shift change should not remove their locks until the arriving employees have attached theirs.

If outside contractors are in the workplace, your company and the contractor must exchange information about their lockout policies.

TAGOUT

When starting machinery or equipment back up;

1. Make sure the area is clear of personnel and tools, then reassemble the equipment.
2. Remove all blocking or braces and replace all guards.
3. Before re-energizing the machine, make sure the start buttons or using controls are in the off position and that everyone is clear of any hazard from the machine.
4. Remove the lock.
5. Test the machine.
6. Notify affected personnel that the lockout has been removed.

BACK INJURY PREVENTION

BACK CARE AND SAFETY

Please watch video: **Back Care and Safety**

A major cause of absenteeism in the workplace is back injury and pain. Certainly, accidents can happen even to very careful workers, but there are some tips to remember to protect your back from unneeded injury.

DESCRIPTION: The secret to safe lifting is to bend your knees, but not your back, and to let your leg muscles do the work. It's simple, and it helps make lifting easier. In lifting, remember that your strength is in your legs. By using your leg muscles in lifting, you protect yourself against back injury and hernia.

PROPER PROCEDURES

When lifting objects from the floor (or objects that are below your waist), keep the following steps in mind:

Bend your knees and keep your back as straight as you can.

When you are as low as possible, grab the object and rock it towards you. Then, put your hands under the object and pull it to you.

Hold the object to your chest and rock back on your heels (you may balance the object on top of your knees)

Once the object is balanced, and you feel comfortable with your grip, straighten your knees (stand up).

Sitting:

Sit in a firm chair with a supportive back. Do not sit in very deep, or overstuffed chairs, or sofas.

When sitting, keep your knees about one-half to one inch higher than your hips.

Avoid sitting in one position for long periods. At least every 20 minutes, get up and move around.

When driving, make sure the front seat of your car is far enough forward so that your knees are higher than your hips. This will reduce the strain on your lower and upper back muscles.

Standing:

Do not stand in one position for longer than a few moments. Shift your weight from one foot to the other.

Women should change from high to low heels if they have to stand for a long period of time.

Sleeping:

When sleeping, lie on either side and draw one or both knees up toward your chin.

Sleep on a flat, thin mattress or use a bed board one-half to three-quarters of an inch thick, placed between the mattress and box springs.

Lifting:

Bend at the knees, not at the waist. Let your legs, not your back, do the work, even if you are only picking up a small item.

When carrying packages, keep them as close to your body as possible to relieve back strain.

If you must carry a heavy load, divide it into two parts if at all possible.

Don't bend over furniture to open or close windows or do similar tasks.

Pushing and Reaching:

When moving a large object, push it, don't pull it.

Use a step stool for reaching high objects.

Safe Practices for Material Handling

The handling of materials is not always as simple as it may seem. It is usually wise to stop and think out the safe method before proceeding. Unsafe material handling causes more work injuries than any single source.

- 1.** When lifting, remember that your greatest source of physical strength is in your legs. By using your leg muscles, in lifting, you protect yourself against back injury and hernia.
- 2.** Get a secure footing.
- 3.** Bend at the knees to grasp the object.
- 4.** Keep the back straight and as nearly upright as possible.
- 5.** Get a firm hold.
- 6.** Lift gradually by straightening the legs, keeping the back upright. Similar safe practices should be followed when putting down a load, as it can be as hazardous as lifting.
- 7.** If the weight is too bulky or heavy to lift safely, get help.
- 8.** When carrying an object with a helper, always remember to provide warning before letting the load down. This prevents a sudden weight being placed on either of you if the load were dropped unexpectedly.

When lifting from a bench, shelf or table, slide the material close to your body, grasp it with your hands, keep arms stiff and make the lift by bending your body backwards.

Appendix A: Requirements for Food Processing – FDA Regulation

All operations in the receiving, inspecting, transporting, segregating, preparing, manufacturing, packaging, and storing of food shall be done in agreement with satisfactory sanitation principles. Appropriate quality control operation shall be used to make sure that food is edible and that food-packaging materials are satisfactory. Overall sanitation of the plant shall be under the supervision of one or more individuals given responsibility for this job. All fair precautions shall be taken to make sure that production procedures do not allow contamination from any source. Chemical, microbial, or extraneous-material testing procedures shall be used where needed to identify sanitation failures or possible food contamination. All food that has become contaminated shall be rejected, or if needed, treated or processed to remove the contamination of raw materials and other ingredients.

1. Raw materials and other ingredients shall be inspected and separated or otherwise handled as needed to make sure that they are clean and suitable for processing into food and shall be stored under conditions that will protect against contamination. Raw materials shall be washed or cleaned as needed to remove soil or other contamination. Water used for washing, rinsing, or conveying food shall clean. Water may be reused for washing, rinsing, or conveying food if it does not increase the level of contamination of the food. Containers and carriers of raw materials should be inspected on when it arrives to make sure that their condition has not contributed to the contamination of food.
2. Raw materials and other ingredients shall either not contain levels of microorganisms that may produce food poisoning, or they shall be treated during manufacturing operations so that they no longer contain harmful levels. This requirement may be looked into by purchasing raw materials and other ingredients under a suppliers' guarantee or certification.
3. Raw materials and other ingredients that could be exposed to contamination with aflatoxin or other natural toxins shall follow current Food and Drug Administration regulations, guidelines, and action levels for poisonous substances before these materials or ingredients are incorporated into finished food. This requirement may be looked into by purchasing raw materials and other ingredients under a supplier's guarantee or certification, or may be looked into by analyzing these materials and ingredients for aflatoxins and other natural toxins.

4. Raw materials, other ingredients, and rework that could be exposed to contamination with pests, undesirable microorganisms, or extraneous material shall follow applicable Food and Drug Administration regulations, guidelines, and defect action levels for natural or unavoidable defects if a manufacturer wishes to use the materials in manufacturing food. This requirement may be looked into by purchasing raw materials under a supplier's guarantee or certification, or examination of these materials for contamination.
5. Raw materials, other ingredients, and rework shall be held in bulk, or in containers made to protect against contamination. Material scheduled for rework shall be identified as such.
6. Frozen raw materials and other ingredients shall be kept frozen. If thawing is required prior to use, it shall be done in a way that prevents the raw materials and other ingredients from becoming contaminated.
7. Liquid or dry raw materials and other ingredients received and stored in bulk form shall be held in a way that protects against contamination.

Manufacturing operations

1. Equipment and utensils and finished food containers shall be held in a good condition through appropriate cleaning, as needed. If needed, equipment shall be taken apart for thorough cleaning.
2. All food manufacturing, including packaging and storage, shall be done under such conditions and controls as needed to minimize the potential for the growth of microorganisms, or for the contamination of food. One way to follow this requirement is careful monitoring of physical factors such as time, temperature, humidity, aw, pH, pressure, flow rate, and manufacturing operations such as freezing, dehydration, heat processing, acidification, and refrigeration to make sure that mechanical breakdowns, time delays, temperature fluctuations, and other factors do not contribute to the contamination of food.
3. Food that can support the rapid growth of undesirable microorganisms shall be held in a way that prevents the food from becoming contaminated. This may be accomplished several ways, including:
 - (i) Providing refrigerated foods at 45x F (7.2x C) or below as appropriate for the particular food involved.
 - (ii) Providing frozen foods in a frozen state.
 - (iii) Providing hot foods at 140x F (60x C) or above.
 - (iv) Heat treating acid or acidified foods to destroy mesophilic microorganisms when those foods are to be held in airtight sealed containers at circulating

temperatures.

4. Steps such as sterilizing, irradiating, pasteurizing, freezing, refrigerating, controlling pH or controlling aw that are taken to destroy or prevent the growth of undesirable microorganisms, particularly those of public health significance, shall be satisfactory under the conditions of manufacture, handling, and distribution to prevent food from being contaminated.
5. Work-in-process shall be handled in a way that protects against contamination.
6. Effective steps shall be taken to protect finished food from contamination by raw materials, other ingredients, or refuse. When raw materials, other ingredients, or garbage are unprotected, they shall not be handled while in a receiving, loading, or shipping area if that handling could result in contaminated food. Food transported by conveyor shall be protected against contamination as needed.
7. Equipment, containers, and utensils used to convey, hold, or store raw materials, work-in-process, rework, or food shall be constructed, handled, and continued during manufacturing or storage in a way that protects against contamination.
8. Effective steps shall be taken to protect against the inclusion of metal or other extraneous material in food. This requirement may be achieved by using sieves, traps, magnets, electronic metal detectors, or other suitable effective means.
9. Food, raw materials and other ingredients that are contaminated shall be disposed of in a way that protects against the contamination of other food. If the adulterated food is capable of being reconditioned, it shall be reconditioned using a method that has been proven to be effective or it shall be reexamined and to make sure it is not contaminated before being put with other food.
10. Mechanical manufacturing steps such as washing, peeling, trimming, cutting, sorting and inspecting, mashing, de-watering, cooling, shredding, extruding, drying, whipping, de-fatting, and forming shall be performed so as to protect food against contamination. This requirement may be achieved by providing satisfactory physical protection of food from contaminants that may drip, drain, or be drawn into the food. Protection may be provided by satisfactory cleaning of all food-contact surfaces, and by using time and temperature controls at and between each manufacturing step.

- 11.** Heat blanching, when required in the preparation of food, should be affected by heating the food to the required temperature, holding it at this temperature for the required time, and then either rapidly cooling the food or passing it to the next manufacturing without delay. Hemophilic growth and contamination in blanches should be minimized by the use of satisfactory temperatures and by periodic cleaning. Where the blanched food is washed prior to filling, water used shall be clean.
- 12.** Batters, breadings, sauces, gravies, dressings, and other similar preparations shall be treated or continued in such a way that they are protected against contamination. This may be accomplished several ways, including one or more of the following:

 - (i) Using ingredients free of contamination.
 - (ii) Employing satisfactory heat processes where needed.
 - (iii) Using satisfactory time and temperature controls.
 - (ii) Providing satisfactory physical protection of components from contaminants that may drip, drain, or be drawn into them.
 - (iii) Cooling to a satisfactory temperature during manufacturing.
 - (iv) Disposing of batters at appropriate intervals to protect against the growth of microorganisms.
- 13.** Filling, assembling, packaging, and other operations shall be performed in such a way that the food is protected against contamination. This may be accomplished several ways, including:

 - (i) Use of a quality control operation in which the critical control points are identified and controlled during manufacturing.
 - (ii) Satisfactory cleaning of all food-contact-surfaces and food containers.

ACKNOWLEDGMENTS

Biography

of

Jim Johnson

Jim Johnson has been involved in Human Resource activities for over twenty years. His experience includes supervision and management roles in various firms, primarily manufacturing. Five of those years were in a food processing facility in Central Washington. Additionally, Mr. Johnson has consulted in the Human Resources field for the last several years which includes agricultural firms. His Bachelor of Science degree is in Human Resource Development, and he is active in the Society for Human Resource Management. Mr. Johnson instructs at Big Bend Community College in various business- related topics.

Mr. Johnson has been involved in the design and delivery of a number of training programs over the course of his career. Included in his training experience is work with food processors and service providers. Additionally, Mr. Johnson provides contract -training services as part of his consulting business.

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